SAMSUNG

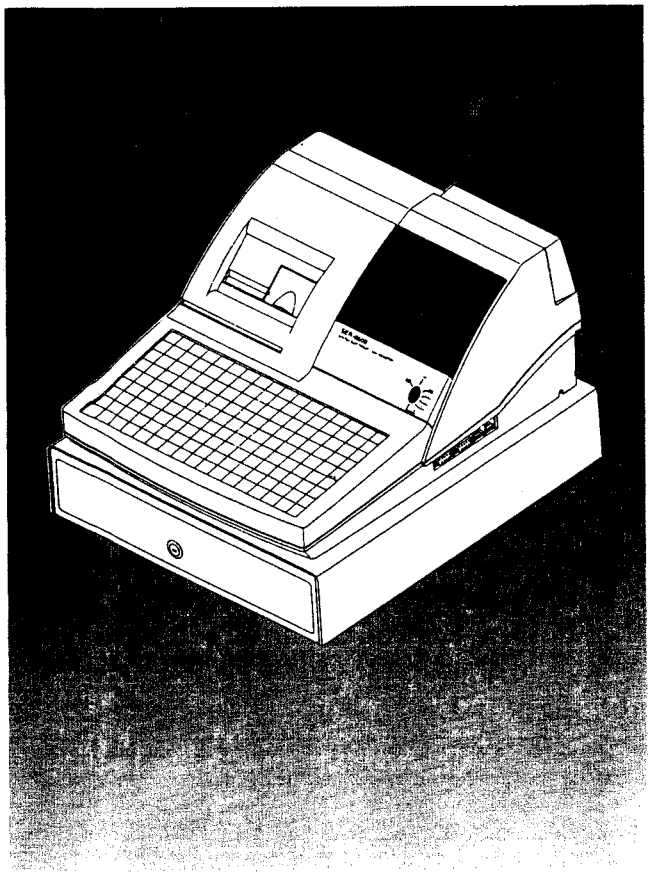
# ELECTRONIC CASH REGISTER

**SER - 6500 / SER-6500F**

**SER - 6540 / SER-6540F**

# SERVICE Manual

## ELECTRONIC CASH REGISTER



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# 1 Precaution Statements

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

## 1-1 Safety Precautions

1. Be sure that all built-in protective devices are replaced. Restore any missing protective shields.
2. When reinstalling the chassis and its assemblies, be sure to restore all protective devices, including: nonmetallic control knobs and compartment covers.
3. Make sure there are no cabinet openings through which people – particularly children – might insert fingers and contact dangerous voltages. Such openings include excessively wide cabinet ventilation slots and improperly fitted covers and drawers.
4. Design Alteration Warning:
   Never alter or add to the mechanical or electrical design of the ECR. Unauthorized alterations might create a safety hazard. Also, any design changes or additions will void the manufacturer's warranty.
5. Components, parts and wiring that appear to have overheated or that are otherwise damaged should be replaced with parts that meet the original specifications. Always determine the cause of damage or overheating, and correct any potential hazards.
6. Observe the original lead dress, especially near the following areas: sharp edges, and especially the AC and high voltage supplies. Always inspect for pinched, out-of-place, or frayed wiring. Do not change the spacing between components and the printed circuit board. Check the AC power cord for damage. Make sure that leads and components do not touch thermally hot parts.
7. Product Safety Notice:
   Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they give might be lost if the replacement component differs from the original – even if the replacement is rated for higher voltage, wattage, etc.

   Components that are critical for safety are indicated in the circuit diagram by shading, (⏚) or (⚠).Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards

## 1-2 Servicing Precautions

**Warning 1:** First read the "Safety Precautions" section of this manual. If some unforeseen circumstance creates a conflict between the servicing and safety precautions, always follow the safety precautions.

**Warning 2:** An electrolytic capacitor installed with the wrong polarity might explode.

1. Servicing precautions are printed on the cabinet. Follow them.
2. Always unplug the unit's AC power cord from the AC power source before attempting to:
   (a) Remove or reinstall any component or assembly, (b) Disconnect an electrical plug or connector, (c) Connect a test component in parallel with an electrolytic capacitor.
3. Some components are raised above the printed circuit board for safety. An insulation tube or

tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.

4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the portion around the serviced part has not been damaged.
5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels and input terminals).
6. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
7. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
8. Always connect an instrument's ground lead to the instrument chassis ground *before* connecting the positive lead; always remove the instrument's ground lead last.

## 1-3 Precautions for Electrostatically Sensitive Devices (ESDs)

1. Some semiconductor ("solid state") devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs); examples include integrated circuits and some field-effect transistors. The following techniques will reduce the occurrence of component damage caused by static electricity.
2. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. (Be sure to remove it prior to applying power – this is an electric shock precaution.)
3. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of electrostatic charge.
4. Do not use freon-propelled chemicals. These can generate electrical charges that damage ESDs.
5. Use only a grounded-tip soldering iron when soldering or unsoldering ESDs.
6. Use only an anti-static solder removal device. Many solder removal devices are not rated as "anti-static;" these can accumulate sufficient electrical charge to damage ESDs.
7. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
8. immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
9. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting a foot from a carpeted floor can generate enough static electricity to damage an ESD.

# 2 Product Specifications

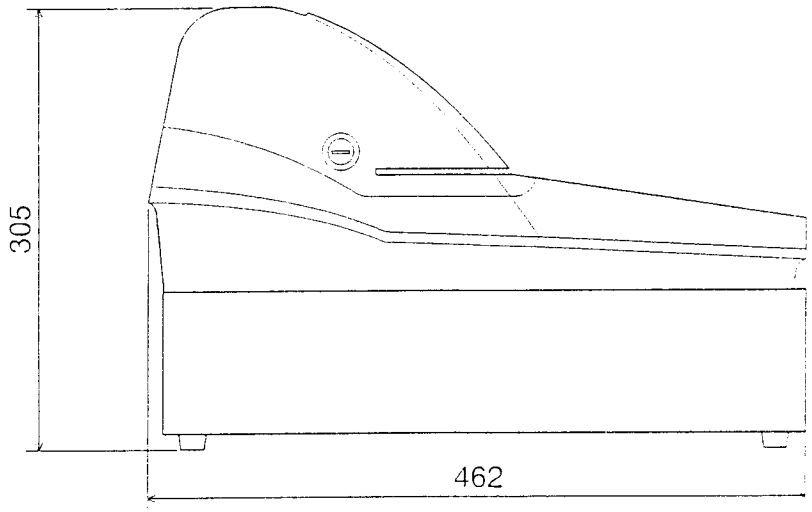
Specifications are correct at the time of printing. Product specifications are subject to change without notice. See below for product specifications.

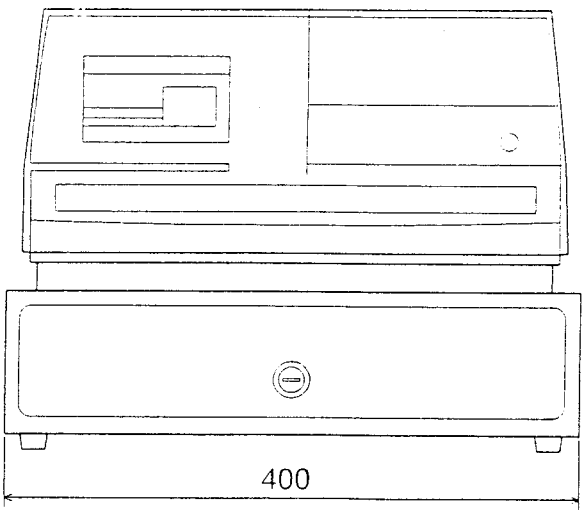
## 2-1 Specifications

| Item | Description | Remark |
|---|---|---|
| AC Power Source | AC 120V, 60Hz<br>AC 230V, 50 Hz | USA<br>Europe |
| Power Consumption | 55W | USA and Europe |
| R/J Printer | 1 pair, 9-pin Dot matrix<br>Receipt paper auto-cutter (optional)<br>Printing speed: 3.0 lines per second<br>Receipt/Journal paper sensor | |
| Processor | INTEL I80188<br>INTEL I8032/80C32 | |
| Memory | I80188<br>Default: SRAM (KM681000*2) : 256kbyte<br>EPROM (27C010*3) : 384kbyte<br>EXT. :Main PCB SRAM (KM681000*1 ) : 128kbyte<br>Option PCB SRAM (KM681000*8) : 1024kbyte<br>I8032/80C32<br>SRAM (KM6264*1) : 8kbyte<br>EPROM (27C512*1) : 64kbyte | |
| Data Storage | 60 Days | When battery fully charged |
| Battery | Ni-cad, 60mA<br>Charging time: 24 hours | |
| Display | Front: 12-character dot display (12digit / 10digit)<br>Rear: 10-digit display | |
| Keyboard | 160-key<br>90-key | SER-6500<br>SER-6540 |
| Interface | Default : RS-232C : 2 ports<br>: IRC : 2 port<br>Ext. : RS-232C : 2 ports | optional |
| IRC | Communication mode: CSMA/CD, RS485<br>Communication speed: 125Kbps<br>Communication distance: 1km<br>Test Condition : Belden Cable , 1 pair twisted, shielded,AWG22 | maximum |
| Drawer | D5508, 5C5B<br>8C4B<br>Weight: 9.3Kg<br>Dimensions: 400 (W) x 450 (L) x 111 (H) | USA<br>Europe<br>When packed<br>millimeters |
| Packing Carton | Weight: 17.6Kg<br>Dimensions: 400 (W) x 462(L) x 305 (H) | millimeters |

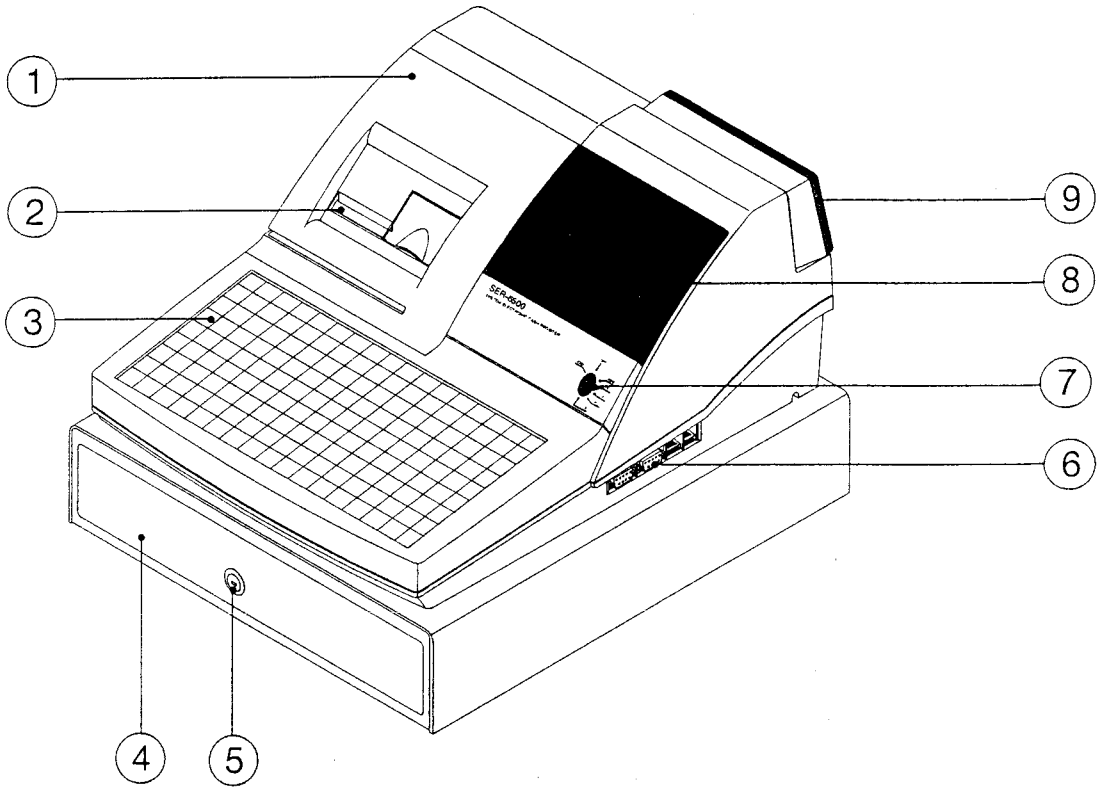
## 2-2 Dimension , Feature

### 2-2-1 Dimension



## 2-2-2 Feature




① Cover Printer
② Impact dot printer
③ Key-board
④ Drawer
⑤ Drawer lock key
⑥ IRC (Inter Register Communication)
⑦ M ode switch
Serial 1 (RS232C)
⑧ Window display
Serial 2 (RS232C)
⑨ Rear display

# 2-3 Communication Interfaces

## 2-3-1 Serial Interfaces, Port Locations

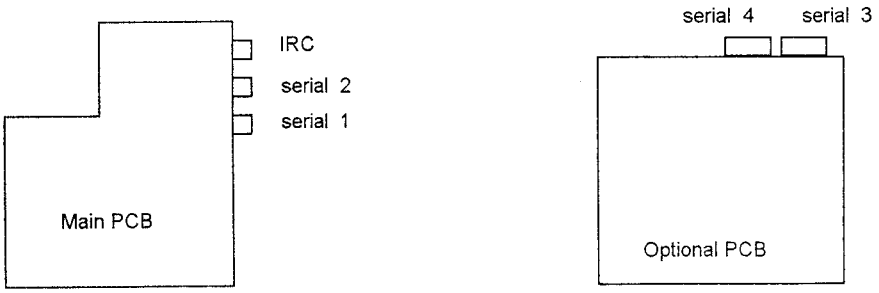



Figure 2-1. RS-232C Interface Locations

## 2-3-1 Serial Interfaces, Pin Descriptions (OPTIONAL .P.C.B.)

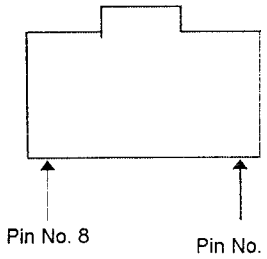



Figure 2-2. Pin Locations

Table 2-1. Pin Descriptions, Serial Ports

| Serial Port 1 | |
|---|---|
| Pin No. | Signal |
| 1 | DCD\ |
| 2 | RD\ |
| 3 | TD\ |
| 4 | DTR\ |
| 5 | S.G. |
| 6 | DSR\ |
| 7 | RTS\ |
| 8 | CTS\ |
| 9 | Vcc |

| Serial Port 2 | |
|---|---|
| Pin No. | Signal |
| 1 | N.C. |
| 2 | RD |
| 3 | TD |
| 4 | DTR\ |
| 5 | S.G. |
| 6 | N.C. |
| 7 | RTS\ |
| 8 | CTS\ |
| 9 | Vcc |

Optional

| Serial Ports 3 and 4 | |
|---|---|
| Pin No. | Signal |
| 1 | N.C. |
| 2 | DSR\ |
| 3 | TD |
| 4 | RD |
| 5 | RTS\ |
| 6 | CTS\ |
| 7 | GND |
| 8 | DTR\ |

# 3 Installation and Operation

This chapter details the method for installing the ECR system.

## 3-1 System Configuration

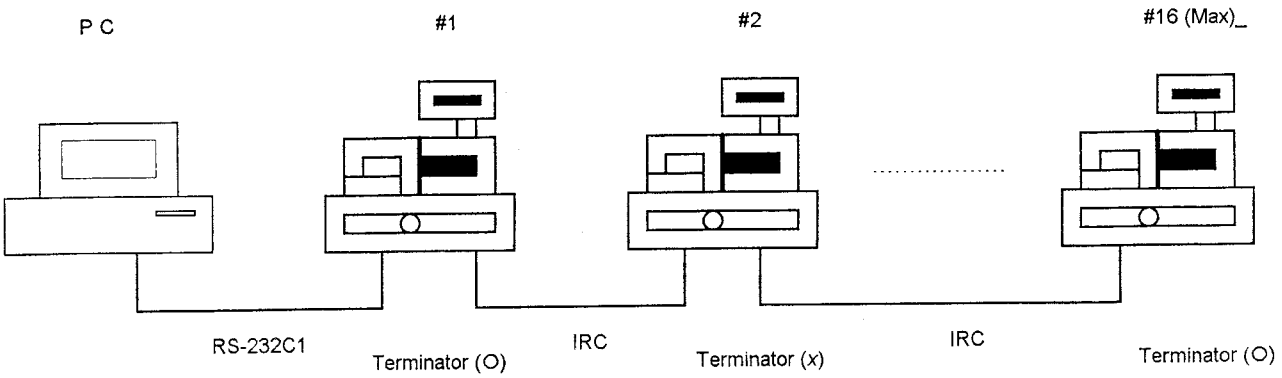



Figure 3-1. Multiple Terminal System

**Note:** 1. When installing IRC connector, connect the GROUND terminal only at the one END of IRC cable.

2. When installing a system with multiple terminals, connect a Terminator only at the two ends of the chain,for example, at terminal 1 and at terminal 16. Do not use a Terminator at any ECR between the first and last units.

### 3-1-1 Terminator Specification

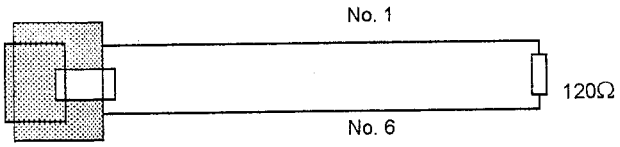



Figure 3-2. Terminator

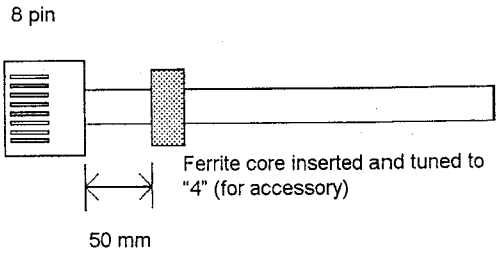



Figure 3-4. Cable for Serial Ports 3 and 4

### 3-1-2 Cable Specifications

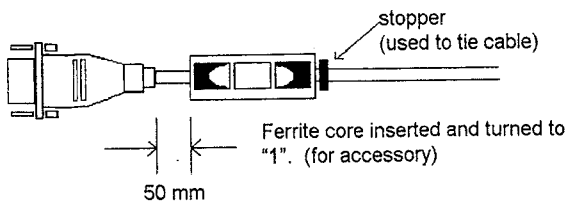
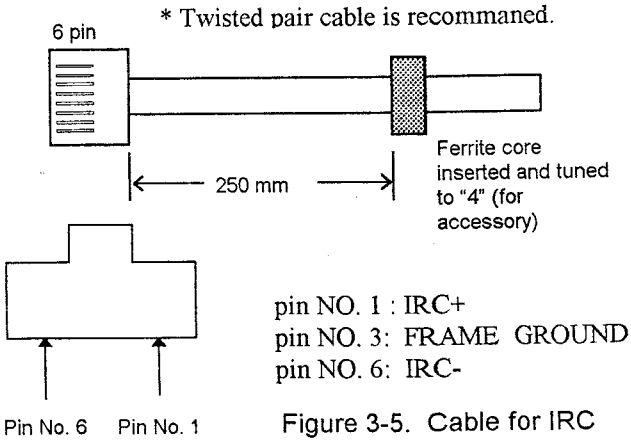



Figure 3-3. Cable for Serial Ports 1 and 2

* Twisted pair cable is recommaned.




pin NO. 1 : IRC+
pin NO. 3: FRAME GROUND
pin NO. 6: IRC-

Figure 3-5. Cable for IRC

## 3-2 Installation

**WARNING: When connecting the keyboard to the Main PCB, make sure the membrane sheet is shaped as in Figure 3-6 (a), below. If the membrane is shaped as in Figure 3-6 (b), the keyboard may malfunction.**

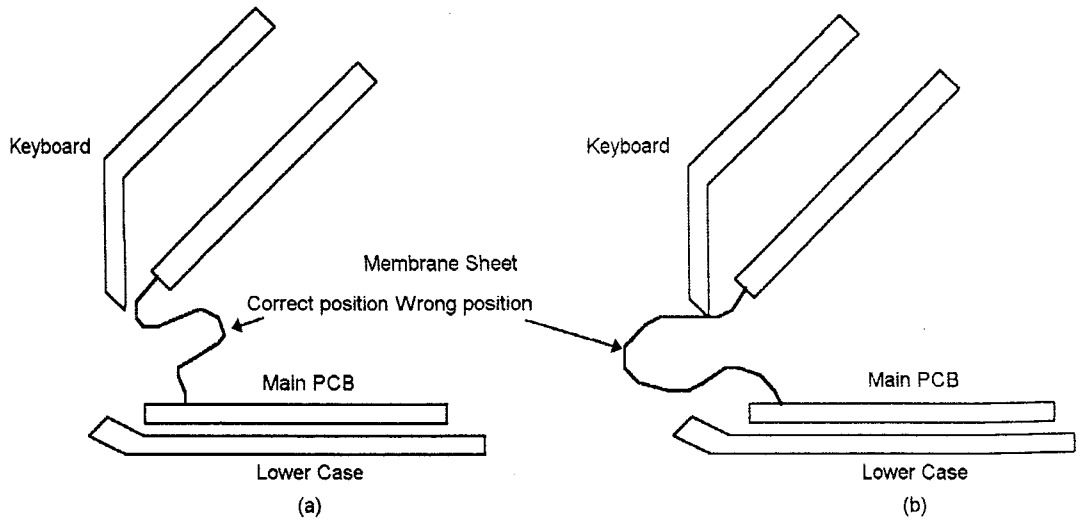
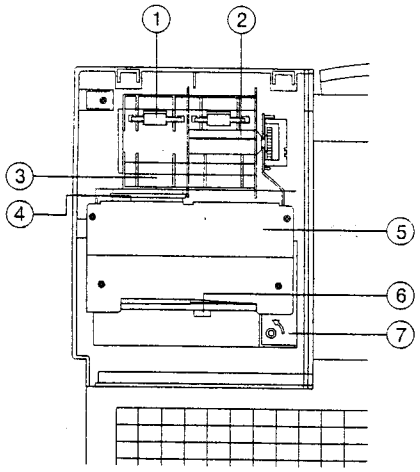



Figure 3-6. Membrane Shape

### 3-2-1 Printer




① Paper Roller
② Spool
③ Stamp(LOGO)
④ Paper Chute
⑤ Impact Dot Printer
⑥ Paper Release Lever
⑦ Ribbon Cassette

Figure 3-7. Printer

### 3-2-2 Ribbon Cassette Installation

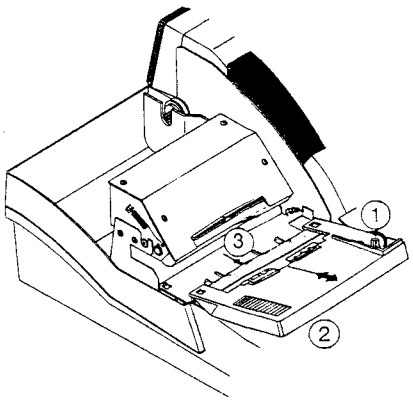



Figure 3-8. Ribbon Cassette

1. Before inserting ribbon cassette②, turn knob ① (see Figure 3-8) counterclockwise to prevent twisting the ribbon.
2. After inserting the ribbon cassette② at the center③ of the printer, turn the knob ① counterclockwise again to make sure the ribbon moves freely in the cassette.

## 3-2-3 Receipt/Journal Paper Insertion

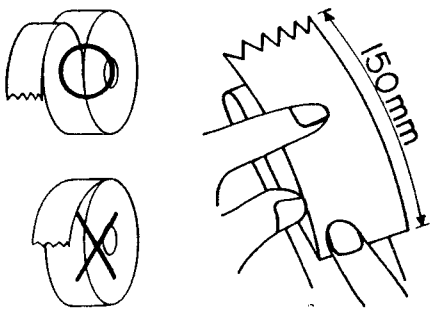



Figure 3-9. Folding Paper for Insertion

1. Using a new roll of paper, unroll the paper about 150 mm and fold the paper as shown in Figure 3-9.

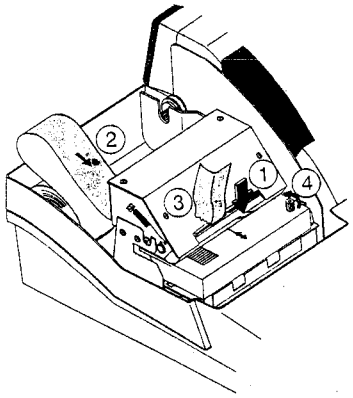



Figure 3-10. Inserting the Paper

2. Insert folded paper into the chut ② of the ERP-300V printer. While holding the lever ① down, pull the paper out until the fold point ③ is completely out of the printer. And turn the knob ④ like an arrow.
3. Cut the receipt paper

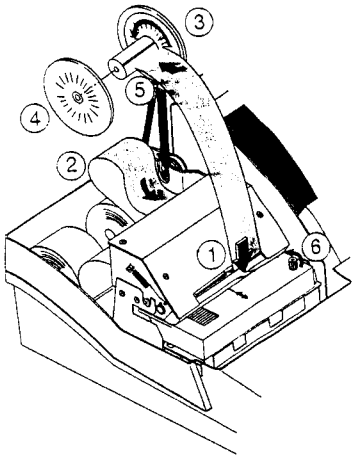



Figure 3-11. Inserting the Journal Paper

4. Insert the journal paper into the slit ③of the rewind spindle. Wind the spindle three or four times.
5. Push end disk ④ onto the spindle as shown in Figure 3-11.
6. Insert the spool to the printer part ⑤.
7. When the journal paper is loose, rewind the spindle to tighten the paper.

## 3-2-4 Option Board (BD-65) Installation

The ECR-65*0 series allows for an increase in the system memory by using an optional memory board (BD-65). Refer to the Exploded Diagram when disassembling and reassembling this ECR. Use the following instruction when installing this optional board.

1. Disconnect the ECR from the external power outlet.
2. Lift off the Printer Cover.
3. Remove three screws (C2, C3 and C4) on Upper Case and lift it up.
4. Remove connectors from the red and the white connectors on Main PCB.
5. Remove Upper Case and Key-Board .
6. If you will be connecting optional equipment through the Option Board (barcode reader or computer) insert cable connector through the channel in the back of ECR.
7. Insert desired number of RAM chips (1Mbit each) in connectors on Option Board. If not installing a full complement of chips, be sure to insert them in the order shown in Figure 3-13.
8. Position Option Board over connector CN1 on Main PCB and carefully press connector on Option Board down to firmly seat it.
9. Insert three screws in the corners to secure Option Board in place.

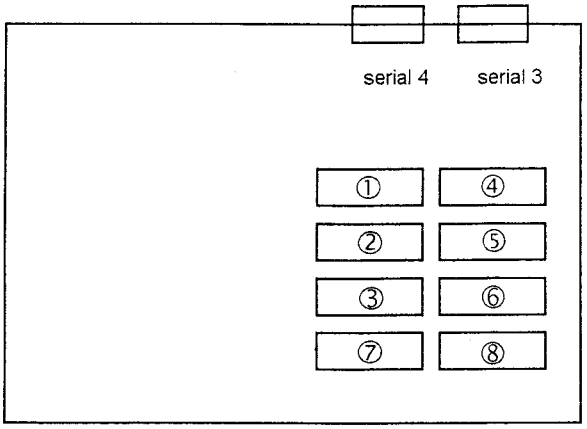



Figure 3-13. Adding More RAM

10. If desired, attach cable connector from peripheral equipment to Serial Port 3 or 4 on Option Board.
11. Replace the connections at the red and the white connector on the Main PCB.
12. Reposition Upper Case and Key-Board on Lower Case and replace three screws at C2, C3 and C4.
13. Replace the Printer Cover.
14. Re-connect the ECR to the power outlet.

# 3-3 Operation

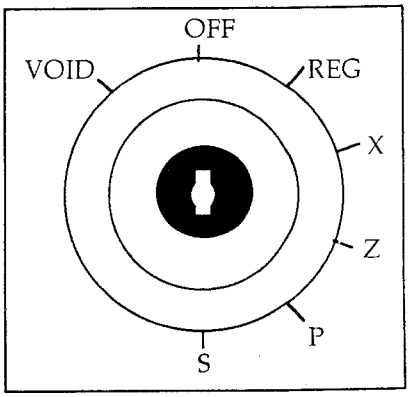
Note: Before using this System Electronic Cash Register (SECR) for the first time, leave it powered ON in the "REG" mode for at least twenty-four hours. This allows the Ni-Cad battery, which maintains the SECR's memory while the power is OFF, to fully charge.

## 3-3-1 Mode Switch

The position of the Mode Switch determines the action of the SECR. The modes are as shown in Table 3-1, below.

Table 3-1. SECR Modes

| Mode | Function |
|---|---|
| VOID | Cancel operation |
| OFF | Operation stop |
| REG | Sales Operation |
| X | X-level report generation |
| Z | Z-level report generation |
| P | Program mode |




| | |
|---|---|
| S | Service mode |

Figure 3-14. Mode Switch

## 3-3-2 Keyboard Matrix

The SER-6500 and SEC-6540 SECRs offer two different types of keyboards; 90-key or 160-key as shown in Table 3-2 .

Table 3-2. Keyboard Types

| Model | Keys | Type |
|---|---|---|
| SER-6540 | 90 | Membrane |
| SER-6500 | 160 | Flat |

# Memo

# 4 Disassembly and Reassembly

This chapter describes the disassembly and reassembly procedures for SER-6500, SER-6540 and SER-6540F electronic cash registers.

**WARNING: This ECR contains electrostatically sensitive devices. Use caution when handling any components.**

## 4-1 Disassembly

**Caution:** Disconnect the ECR from the external power source before disassembly.

Note: The following directions are given for the SER-6500. Differences between the models are identified in the text.

### 4-1-1 Upper Case Disassembly

1. Lift off Printer Cover.
2. Remove three screws (C2, C3 and C4) on Upper Case and lift it up.
3. Remove connectors from the red and the white connectors on Main PCB.
4. Remove Upper Case.

### 4-1-2 ERP-300V Printer Disassembly

1. Remove four screws [a] on Upper Frame Assembly C and remove Cover A. See Figure 4-1, below.
2. Remove two screws [b] and remove Ribbon Frame B from Lower Frame Ass`y I, as shown in the drawing.

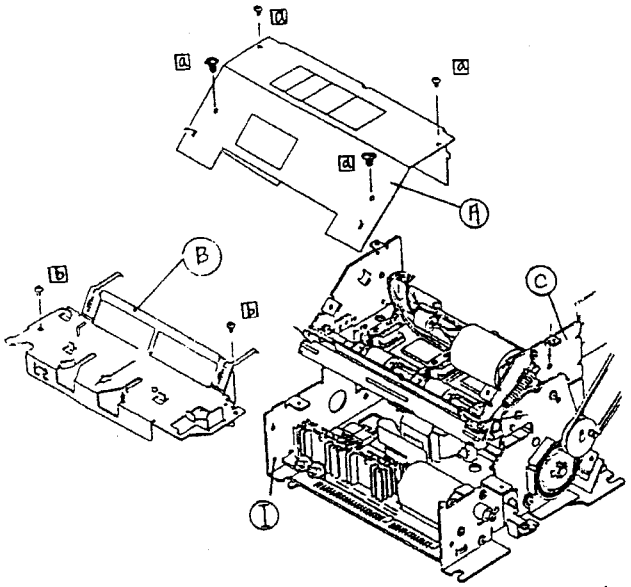



Figure 4-1. Printer Disassembly

3. Remove four screws [c] and separate Upper Frame Ass`y C from Lower Frame Ass`y I. Pull Upper Frame Ass`y in the direction shown in Figure 4-2.

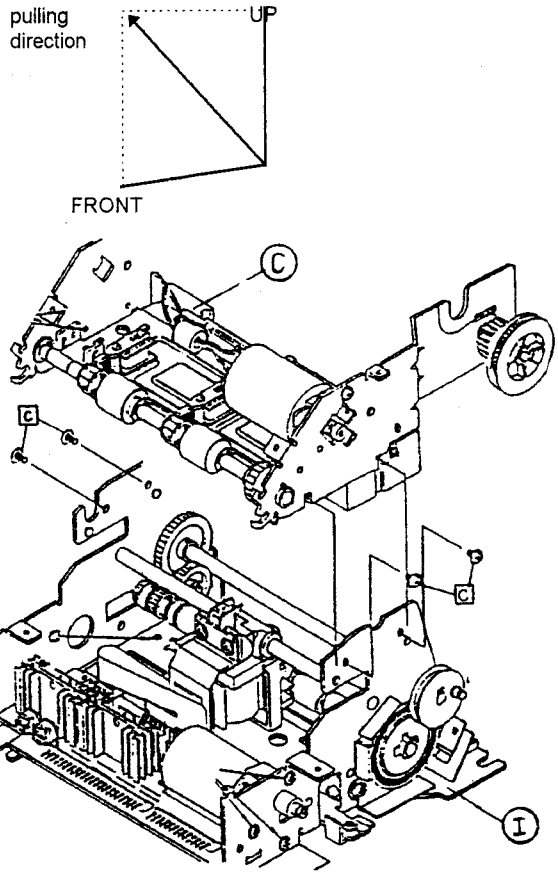



Figure 4-2. Separating Upper Frame from Lower Frame

4. Turn Upper Frame Ass`y C upside down and remove three screws [d]. Remove Stamp Paper Guide Ass`y D from Upper Frame Ass`y C.

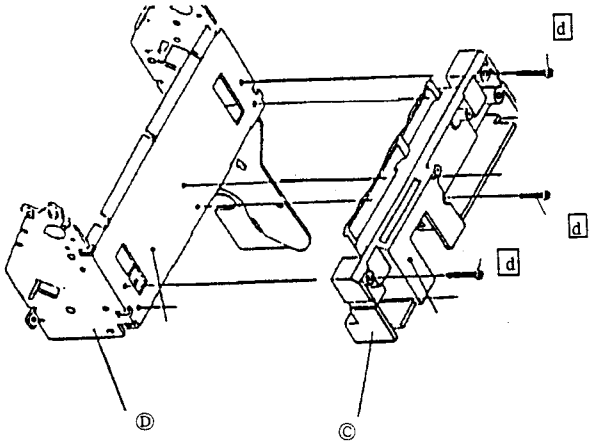



Figure 4-3. Stamp Paper Guide Removal

Remove left side screw [e] on Platen Paper Guide E. This screw connects Platen Paper Guide Ass`y E to Stamp Paper Guide Ass`y D. See Figure 4-4, below.

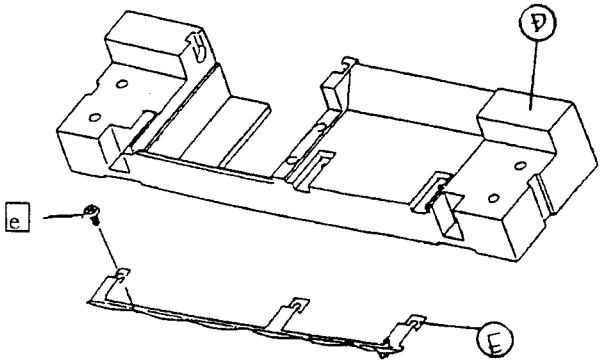



Figure 4-4. Platen Paper Guide Removal

5.

## 4-2 Reassembly

**Caution:** Adjust Head Gap (see Alignments and Adjustments chapter) before returning ECR to owner.

### 4-2-1 ERP-300V Printer Reassembly

1. Position Platen Paper Guide Ass`y E on Stamp Paper Guide Ass`y D and replace screw [e] (see Figure 4-4, above).
2. With Upper Frame Ass`y C upside down, position Stamp Paper Guide Ass`y D and replace three screws [d] (see Figure 4-3, above).
3. Position Upper Frame Ass`y C on Lower Frame Ass`y I and replace four screws [c] (see Figure 4-5, to the right).

**Caution:** Locate Stamp Pusher **F** on hatched area as shown in the figure.

4. Position Ribbon Frame B on Lower Frame Ass`y I and replace two screws [b] (see Figure 4-1, above).
5. Position Cover A on Upper Frame Ass`y C and replace four screws [a].

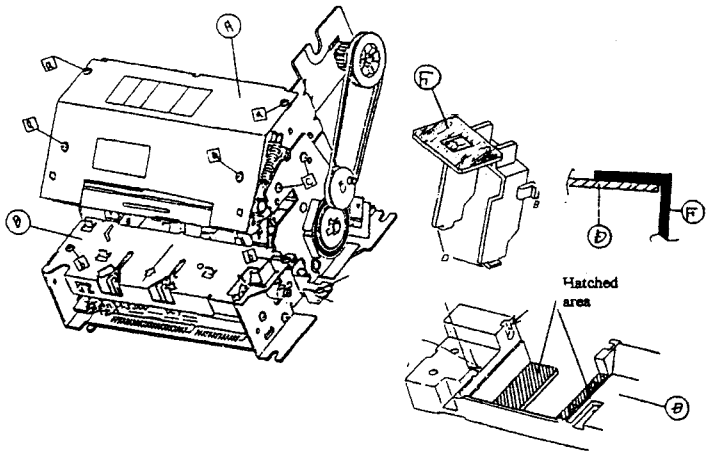



Figure 4-5. Stamp Pusher Position

# 5 Alignments and Adjustments

This chapter describes the methods for aligning and adjusting components in this ECR.

## 5-1 Printer Adjustments

### 5-1-1 Head Gap Adjustment

1. Assemble Upper Frame Assembly A to Lower Frame Ass`y I and loosely fix screws [c].
2. Wind Head Gear counter clockwise, move Head to right end of Platen Guide.
3. Insert Gap Gauge (width 0.5 mm) between Head and Platen. Tighten screws [c].
4. In the same method, wind Head Gear again and move Head to left end of Platen Guide.
5. Insert Gap Gauge (0.5 mm) and tighten the screws.
6. After tightening all screws [c] apply Nej-Lock (a brand of grease) on each of the four screws [c].

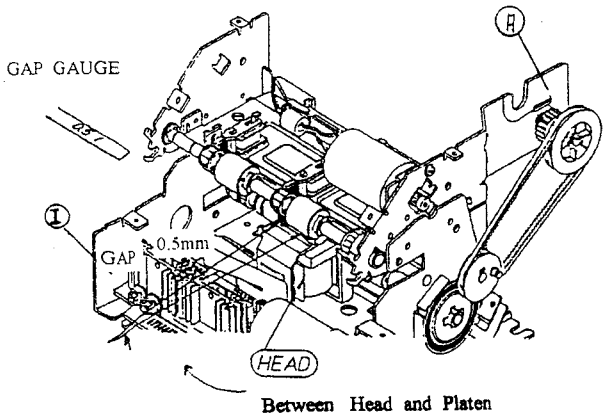



Figure 5-1. Head Gap Adjustment

### 5-1-2 Roll Paper Near-End Detector (Type 1 Paper Sensor)

5-1-1 (a) Adjustment Point

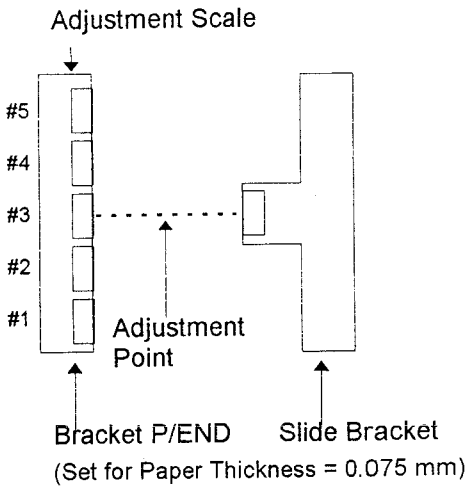



Figure 5-2. Adjustment Point

As Figure 5-2 shows, the slide bracket is set at Adjustment Scale #3. This is the appropriate scale for the recommended paper thickness (0.075 mm).

The accuracy of the Near-End Detector depends on the Adjustment Scale setting and the Roll Paper Winding Core diameter. The only paper approved for use in this ECR has the following characteristics:

Table 5-1. Roll Paper Characteristics

| Characteristic | Measurement |
|---|---|
| Paper Thickness | 0.075 mm |
| Paper Width | 44.5 mm ± 0.5 mm |
| Winding Core Inner Diameter | |

The relationship between the Adjusting Scale and the paper remnant remaining on the core is as shown in Figure 5-3.

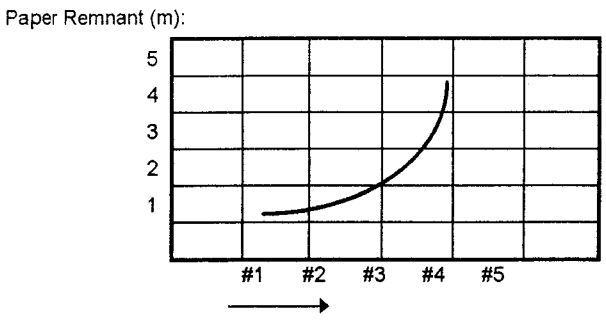



Figure 5-2. Relationship: Adjustment Scale to Remnant Length

Note: Figure 5-2 applies only when using Samsung recommended paper.

Figure 5-3 shows the relationship between the Adjustment Scale and the outer diameter of the Winding Core.

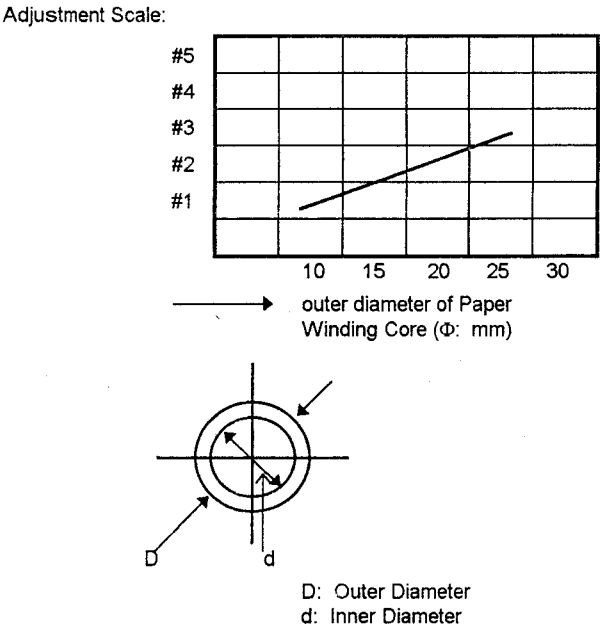



Figure 5-3. Relationship: Adjustment Scale to Winding Core Diameter

Notes:

1. When using roll paper other than Samsung recommended paper, roll paper remnant lengths will differ.
2. When using roll paper with a red end mark, Winding Core may be pulled out of its holder due to the paper sticking to Winding Core. Paper sensor may indicate an inaccurate remnant length if Winding Core is pulled out of its holder.

## 5-1-3 Clearing a Paper Jam

5-1-3 (a) Paper Jamming Causes

1. When more than two papers enter the paper path.
2. When paper cutting remnants remain in the paper exit space.

5-1-3 (b) Clearing Procedure

**Caution:** Always disconnect the power cord from the power outlet *before* working on the Paper Cutter.

1. Open the Printer Cover and remove the Auto-Cutter Cover 2.
2. Remove all jammed paper at Auto-Cutter.
3. Replace Auto-Cutter Cover 2 and close Printer Cover.
4. The Auto-Cutter will operate as soon as power is restored to the ECR. After cutting once, the Auto-Cutter goes to its normal state.

# 6 Troubleshooting

This chapter describes the methods for determining the source of malfunctions in this ECR.

## 6-1 Keyboard Problems

6-1-1 (a) Key Input Failure

1. Check Main PCB at FS1
2. Check all voltage states
3. Check/ change circuit related to Main PCB. (U7-U9,U46)
4. Check printer

6-1-1 (b) Input failure, Specific Key

Check affected key.

6-1-2 Buzzer Malfunction

Check circuit related to Main PCB Buzzer (Q7 , BZ1)

## 6-2 Printer Failure

### 6-2-1 Motor, Stamp, Auto-Cutter, or Paper Feed Failure

1. Check Printer.
2. Check harness . (CN9,CN11)
3. Check Main PCB (TA1 to TA3) and related circuits.
4. Check for paper jam or ribbon twists.

### 6-2-2 Head Failure

1. Check Head Pin and Coil.
2. Check harness (CN9 to CN10)
3. Check/change Main PCB (TA1 to TA3) and related circuits.

### 6-2-3 Receipt/Journal Paper Sensing Failure

1. Check dummy of Paper Near End Sensor.
   Check the Spring.
   Check switch operation status.
   Check wire soldering state.
2. Check connection between Main PCB and Printer.

## 6-3 Drawer Failure

### 6-3-1 Drawer Does Not Automatically Open

1. Check Drawer Solenoid and harness (both ECR side and Drawer side)
2. Check manual Open and Closed states using the Drawer Key.
3. Check Main PCB at Q12 , Q13, Q14 and related circuit.

## 6-4 Clock Failure

- Check U27, C30, C31 and X2.

## 6-5 Display/Customer Display Failure

1. Check/change fluorescent Display PCB solder points and connection harness.
2. Check Main PCB at CN26 connection harness.
3. Check/change Main PCB-related circuits.

## 6-6 Mode Failure

1. Check state of key-lock and connector insertion.
2. Check Main PCB-related circuitry.

## 6-7 Serial 1, 2 Failure

1. Cable connections .
2. Check solder points on Main PCB ( U34,U24-U26 ) and related circuits.
3. **loop back Test**

## 6-8 IRC Failure

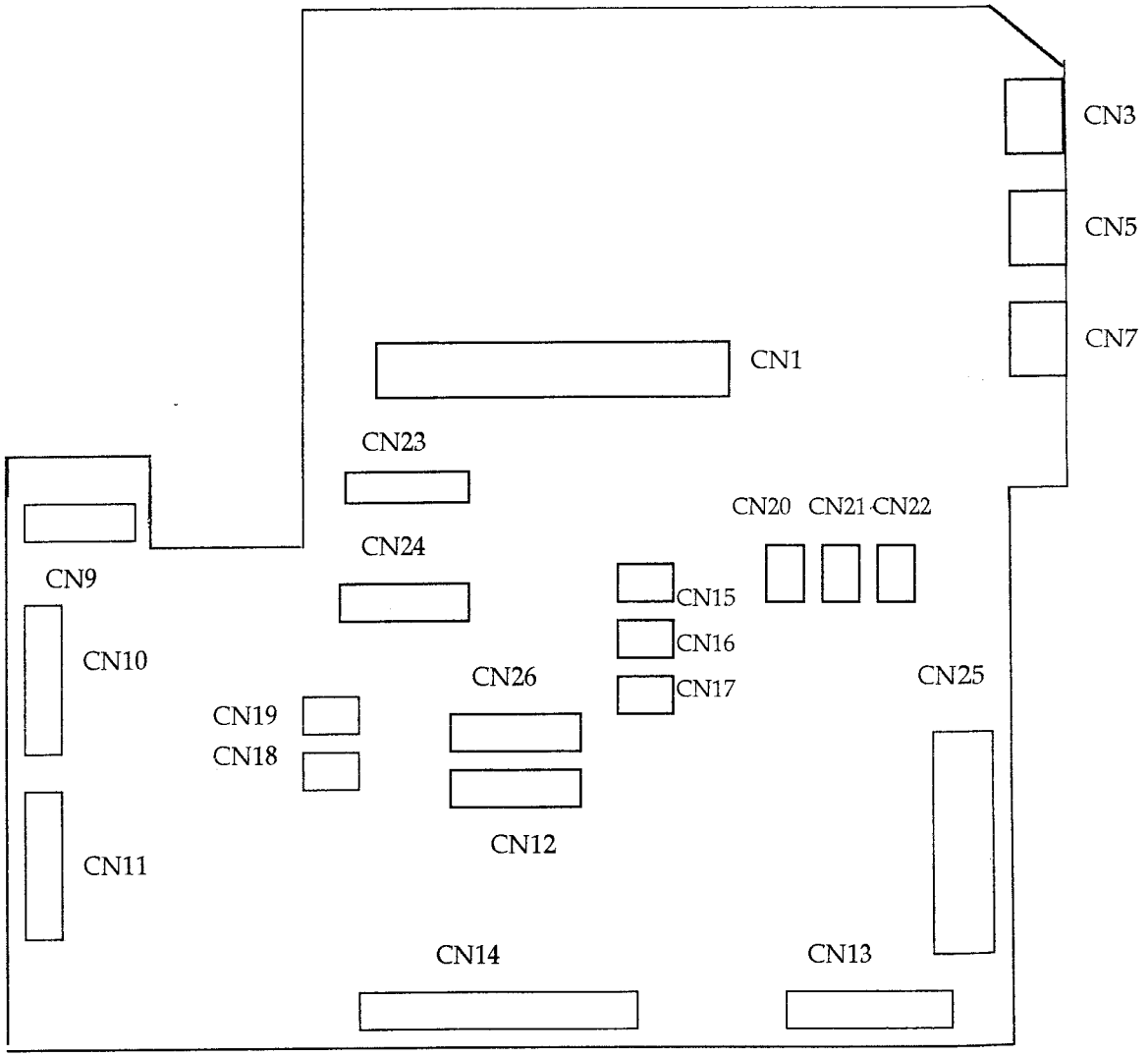
1. Check whether IRC cable is short, open, etc.
2. Check Main PCB at CN4 connection harness .
3. Check Main PCB at U28 and related circuits.

## 6-9 System Failure

### 6-9-1 System Does Not Operate When ALL CLEAR

1. Confirm input voltage is 220VAC..
2. Check fuse FS1 on Main PCB and each output voltage.
3. Check contact of Mode Switch connector state.
4. Check for FPC of Key Board failure.
5. Check printer

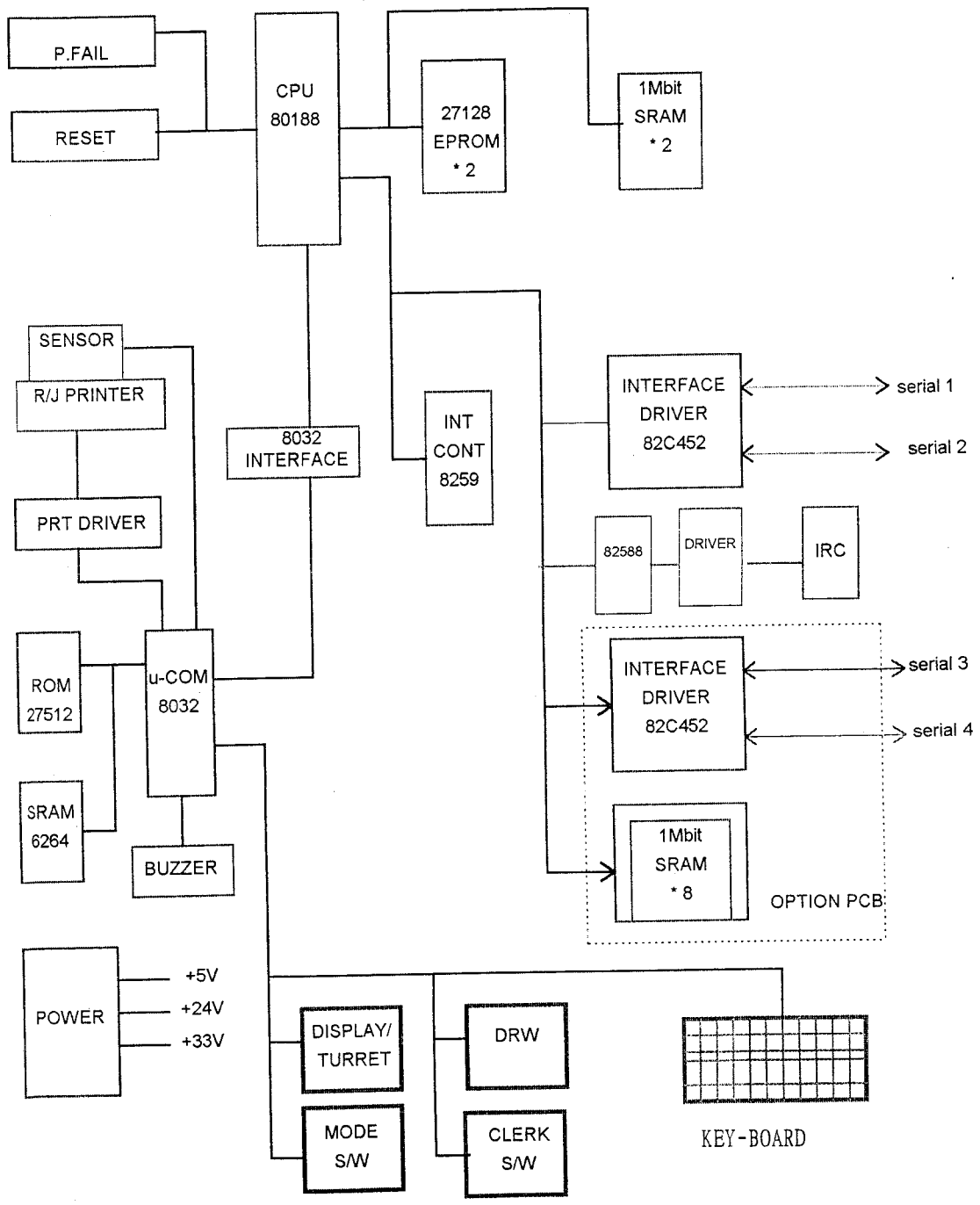
# 7 Main PCB Wiring Diagram




| MARK | Usage | pins | remarks | MARK | Usage | pins | remarks |
|---|---|---|---|---|---|---|---|
| CN1 | Option PCB | 44 | | CN16 | Compulsory 2 | 2 | |
| CN3 | IRC | 6 | | CN17 | Compulsory 3 | 2 | |
| CN5 | Serial 2 | 9 | | CN18 | Paper near End 1 | 2 | |
| CN7 | Serial 1 | 9 | | CN19 | Paper near End 2 | 2 | |
| CN9 | Printer | 10 | | CN20 | Cash Drawer 1 | 2 | |
| CN10 | Printer | 12 | | CN21 | Cash Drawer 2 | 2 | |
| CN11 | Printer | 13 | | CN22 | Cash Drawer 3 | 2 | |
| CN12 | Mode S/W | 8 | White | CN23 | POWER | 4 | |
| CN13 | Key Board | 8 | | CN24 | Clerk S/W | 5 | |
| CN14 | Key Board | 12/20 | | CN25 | Fiscal | 30 | |
| CN15 | Compulsory 1 | 2 | | CN26 | Display | 8 | RED |

## Memo

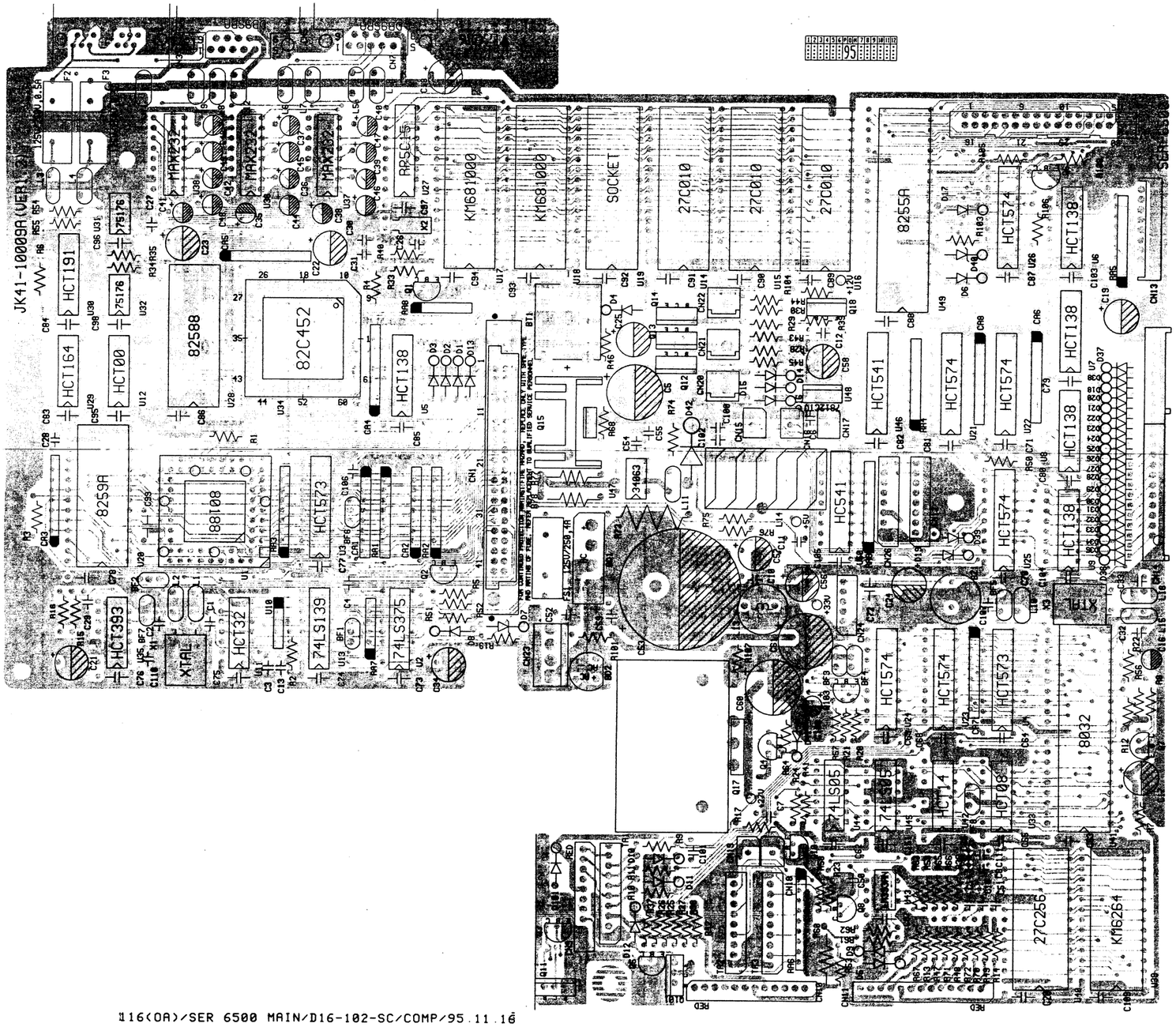
# 8.Block Diagram



## Memo

# 9 PCB Diagrams and Parts List

## 9-1-1 Main PCB (Top View)




116(OA)/SER 6500 MAIN/D16-102-SC/COMP/95.11.16

MAIN PCB

| CODE NUMBER | CC¦EC | SPECIFICATION/DESCRIPTION | QT'Y | LOCATION |
|---|---|---|---|---|
| JK92-50036A | | ASS'Y-MAIN, PCB:SER-6500, U | 1 | |
| JK39-40027A | | CBF-HARNESS:1P, 350MM, GRN/ | 2 | |
| 22109-401-660 | | IC-CMOS EPROM:D27C010-20 | 3 | U14, U15, U16 |
| 2401-000022 | | C-ALUMINUM:6800UF, 20%, 50V | 1 | C53 |
| 24719-006-010 | | BATTERY-NICAD:3/60DK | 1 | BT1 |
| 3711-000041 | | CONNECTOR-HEADER:BOX, 8P, 1 | 1 | CN26 |
| 3722-000001 | | JACK-MODULAR:12P/2C, 12, AU | 1 | CN3 |
| 831 142008AA | | COM, RUBBER-TR:SILICON RUB | 1 | |
| 831 511011AA | | COM, HEAT SINK:A6063 H30 | 1 | Q15 |
| 831 512010AA | | COM, HEAT SINK:A6063-H45, S | 1 | Q17 |
| 871 100232AB | | IC-TTL, 232, LINE DRIVER:DI | 3 | U36, U37, U38 |
| 877 108032AA | 1 | IC-MPU, 8032, PROCESSOR:DIP | 1 | U41 |
| 877 180188KA | | IC-MPU, 80188, U-PROCESSOR: | 1 | U1 |
| 877 308259ACNA | 1 | IC-MPU, 82C59, MICRO CONTRO | 1 | U20 |
| 877 382588AA | | IC-MPU, 82588, CONTROLLER:D | 1 | U28 |
| 877 982452KA | | IC-MPU, 82C452A, ACE:PLCC, 6 | 1 | U34 |
| 881 251953UB | 1 | IC-LIN, 51953B, DETECTOR:SI | 1 | U10 |
| 883 106264AA | 1 | IC-MEM, SRAM, 6264, 8KX8:DIP | 1 | U39 |
| 883 199002AC | | IC-MEM, SRAM, 681000, 1M:DIP | 2 | U17, U18 |
| 883 627512BBND | | IC-MEM, EPROM, 27C512, 512K: | 1 | U40 |
| 887 135102SH | | IC-HYB, R-NETWORK, 10P:SIP, | 1 | RA6 |
| 887 135472SD | | IC-HYB, R-NETWORK, 6P:SIP, 6 | 2 | RA7, RA8 |
| 887 200012SA | | IC-HYB, C-NETWORK, 9P:SIP, 9 | 3 | CA1, CA2, CA3 |
| 887 200012SA | 1 | IC-HYB, C-NETWORK, 9P:SIP, 9 | 1 | CA4 |
| 887 200012SA | 2 | IC-HYB, C-NETWORK, 9P:SIP, 9 | 4 | CA5, CA6, CA7, CA8 |
| 891 291010AA | | TR-PNP, KSA1010, TO-220:1.5 | 1 | Q15 |
| 891 490288BCNA | | (S) TR-NPN, KSD288-Y, TO-220 | 1 | Q101 |
| 891 490560BBNA | | (S) TR-NPN, 2SD560-R, TO-220 | 4 | Q11, Q12, Q13, Q14 |
| 891 590142AA | | TR-NPN, TIP142, TO-3P:125W, | 1 | Q17 |
| 893 290032AF | | DIODE-ZEN, UZP-6.2B, DO-41: | 1 | D40 |
| 893 290032AJ | | DIODE-ZEN, UZP-5.1B, DO-41: | 1 | D7 |
| 893 315822AANA | | DIODE-REC, 1N5822, 267-02:- | 1 | D42 |
| 893 390108AANA | | DIODE-REC, W02G, :200V, 1A, 1 | 1 | BD2 |
| 893 399023AA | | DIODE-REC, KBU6B, BRIDGE:70 | 1 | BD1 |
| 911 301007GA | | REF-MO, 0.1, 5%, 1W:350V, -35 | 2 | R77, R78 |
| 911 332207LA | | REF-MO, 220, 5%, 3W:-, -350 T | 1 | R73 |
| 917 123100LM | | CAP-AL.ELEC, 107M, 2A:(T) 10 | 1 | C61 |
| 917 123470HM | | CAP-AL.ELEC, 477M, 1H:(T) 47 | 2 | C5, C60 |
| 917 843470CM | | CAP-AL, ELEC, 477M, 1C:470UF | 1 | C57 |

| CODE NUMBER | CC¦EC | SPECIFICATION/DESCRIPTION | QT'Y | LOCATION |
|---|---|---|---|---|
| 925 480003AB | | COIL-CHOKE, 220UH, 5A:SP-24 | 1 | L14 |
| 925 480003BA | | COIL-CHOKE, 10UH, 1A:SP-241 | 1 | L13 |
| 935 100109FG | | CON-D-SUB, 9P, RECEPTACLE:A | 2 | CN5, CN7 |
| 935 144108AANA | | CON-FLAT CABLE, 8P, 2.54:ST | 1 | CN13 |
| 935 144120AANA | | CON-FLAT CABLE, 20, 2.54MM: | 1 | CN14 |
| 935 155132DCNA | | CON-IC SOCKET, 32P:DIP, STR | 4 | U14, U15, U16, U19 |
| 935 155368DA | | CON-IC SOCKET, 68P, PLCC:PL | 1 | U1 |
| 935 240102DA | 1 | CON-BOX HEADER, 2P, 2.5MM:1 | 1 | CN19 |
| 935 240102DA | 2 | CON-BOX HEADER, 2P, 2.5MM:1 | 4 | CN15, CN16, CN17, CN18 |
| 935 240105DA | | CON-BOX HEADER, 5P, 2.5MM:1 | 1 | CN24 |
| 935 240108DA | | CON-BOX HEADER, 8P, 2.5MM:1 | 1 | CN12 |
| 935 240344EA | | CON-DIN, 44P, PLUG, 2.54MM:2 | 1 | CN1 |
| 935 240902DF | 1 | CON-WALL HEADER, 2P, 3.96MM | 3 | CN20, CN21, CN22 |
| 935 240904DF | | CON-WALL HEADER, 4P, 3.96:S | 1 | CN23 |
| 939 010031AA | | AUDIO-BUZZER:-, -, -, -, | 1 | BZ1 |
| 941 110067UBNA | | CRYSTAL, 12M, 50:HC-49/U, -, | 1 | X3 |
| 941 110073AA | | CRYSTAL, 32.768K, 20:DT-38, | 1 | X2 |
| 941 110514BA | | CRYSTAL, 16M, 50:HC-49/U, 20 | 1 | X1 |
| 949 110015AC | | FUSE-GLASS TUBE, 4A, 125V, 5X20MM | 1 | FS1 : USA |
| 949 110027AY | | FUSE-GLASS TUBE, 4, 250:TIM | 1 | FS1 : EUROPE |
| 949 110502THNA | | FUSE-GLASS TUBE, 0.5 250:T | 2 | F2, F3 : EUROPE |
| 3601-000005 | | FUSE, 125V, 0.5A, NON-TIME, GLASS | 2 | F2, F3 : USA |
| 955 390109AAAA | | CBF-CONN ASSY, 250MM, 13P:H | 1 | CN11 |
| 955 390110AAAA | 1 | CBF-CONN ASSY, 220MM, 22P:H | 1 | |
| 955 390116ZZAA | | CBF-TERMINAL LUG 70MM:UL | 1 | |

MAIN AUTO

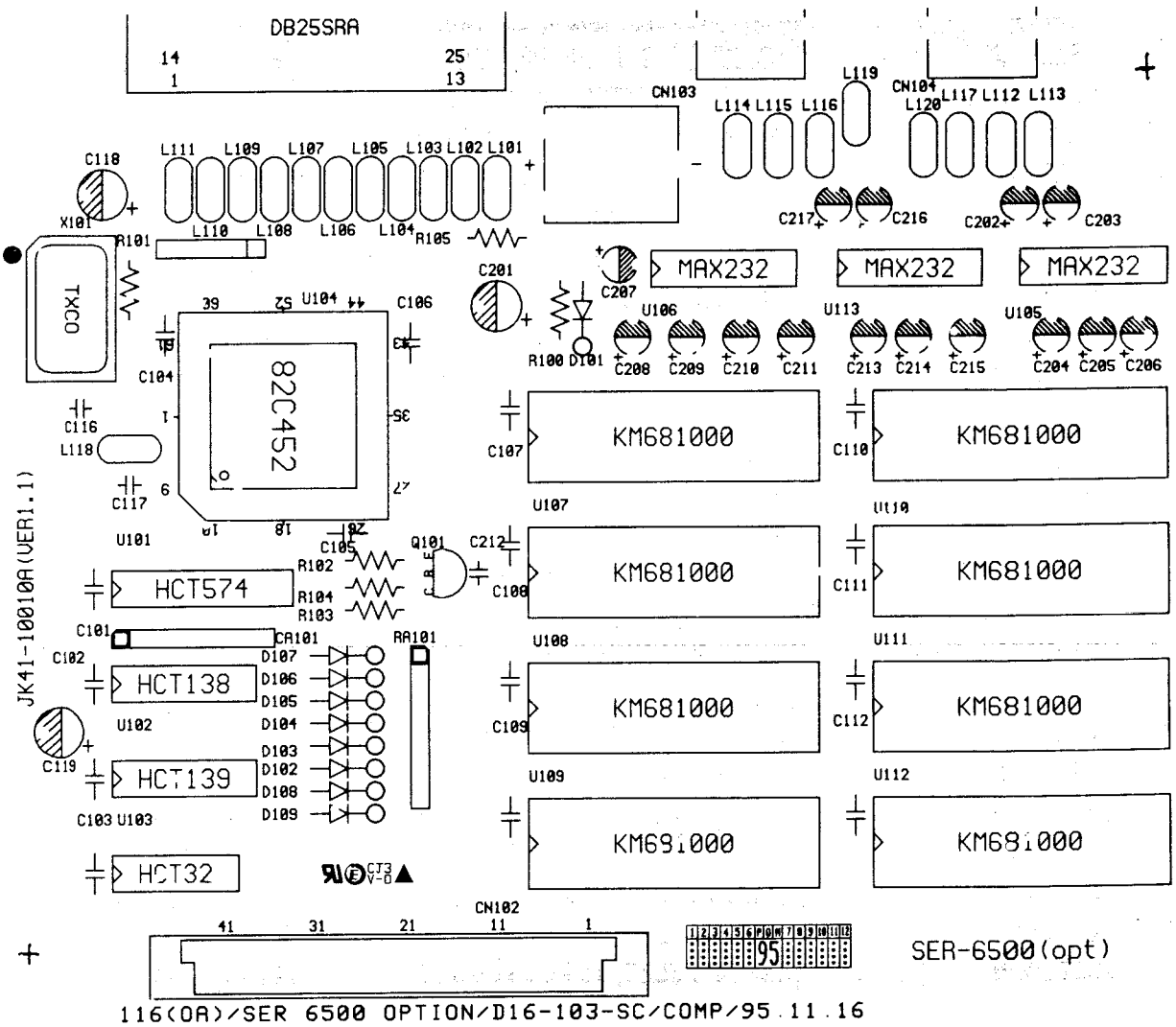
| CODE NUMBER | CC¦EC | SPECIFICATION/DESCRIPTION | QT'Y | LOCATION |
|---|---|---|---|---|
| JK96-50004A | | ASS'Y-PCB/AUTO:SER-6500, C | 1 | |
| JK41-10009A | | PCB-MAIN:SER-6500, 2L, 242* | 1 | |
| 02169-201-077 | 1 | DIODE:1N4003 (T) | 3 | D10, D11, D12 |
| 02169-201-077 | 4 | DIODE:1N4003 (T) | 4 | D14, D15, D16, D17 |
| 02169-201-077 | 5 | DIODE:1N4003 (T) | 1 | D101 |
| 871 175176AA | | IC-TTL, 75176, TRANSCEIVER: | 2 | U31, U32 |
| 871 760005AANF | | IC-TTL, 74LS05, INVERTER:DI | 2 | U44, U45 |
| 871 760375AANB | | IC-TTL, 74LS375, LATCH:DIP, | 1 | U2 |
| 873 760014AANB | | IC-MOS, 74HC14, INVERTER:DI | 1 | U42 |
| 873 760164AANC | | IC-MOS, 74HC164, REGISTER:D | 1 | U29 |
| 873 760191AA | | IC-MOS, 74HC191, COUNTER:DI | 1 | U30 |
| 873 760393AANA | | IC-MOS, 74HC393, COUNTER:DI | 1 | U35 |
| 873 790000AB | | IC-MOS, 74HCT00, GATE:DIP, 1 | 1 | U12 |

| CODE NUMBER | CC¦EC | SPECIFICATION | QT'Y | LOCATION |
|---|---|---|---|---|
| 873 790032AANB | | IC-MOS, 74HCT32, GATE:DIP, 1 | 1 | U33 |
| 873 790032AANB | | IC-MOS, 74HCT32, GATE:DIP, 1 | 1 | U11 |
| 873 790138AC | | IC-MOS, 74HCT138, DECODER:D | 5 | U5, U6, U7, U8, U9 |
| 873 790139AC | | IC-MOS, 74HCT139, DECODER:D | 1 | U13 |
| 873 790541AC | | IC-MOS, 74HCT541, BUFFER:DI | 1 | U46 |
| 873 790541AC | 1 | IC-MOS, 74HCT541, BUFFER:DI | 1 | U50 |
| 873 790573AC | | IC-MOS, 74HCT573, LATCH:DIP | 2 | U3, U4 |
| 873 790574AC | 1 | IC-MOS, 74HCT574, LATCH:DIP | 4 | U21, U22, U23, U24 |
| 873 790574AC | 2 | IC-MOS, 74HCT574, LATCH:DIP | 2 | U25, U26 |
| 881 200393AAND | | IC-LIN, 393, COMPARATOR:DIP | 1 | U43 |
| 881 434063AA | | IC-LIN, 34063, CONVERTE:DIP | 1 | U47 |
| 881 700515AA | | IC-LIN, 5C15, TIME CLOCK:DI | 1 | U27 |
| 881 804102YA | | IC-LIN, 4102, DAR-TR ARRAY: | 3 | TA1, TA2, TA3 |
| 887 135472SGSA | | IC-HYB, R-NETWORK, 9P:SIP, 9 | 5 | RA1, RA2, RA3, RA4, RA5 |
| 891 190708XC | | TR-PNP, KSA708, TO-92:0. 8W, | 2 | Q103, Q10 |
| 891 390006XA | 2 | TR-NPN, KSC945, TO-92:0. 25W | 5 | Q1, Q2, Q3, Q4, Q5 |
| 891 390006XA | 3 | TR-NPN, KSC945, TO-92:0. 25W | 3 | Q7, Q8, Q103 |
| 893 114148AANA | 1 | DIODE-SIG, 1N4148, DO-35:75 | 5 | D18, D19, D20, D21, D22 |
| 893 114148AANA | 2 | DIODE-SIG, 1N4148, DO-35:75 | 5 | D23, D24, D25, D26, D27 |
| 893 114148AANA | 3 | DIODE-SIG, 1N4148, DO-35:75 | 5 | D28, D29, D30, D31, D32 |
| 893 114148AANA | 4 | DIODE-SIG, 1N4148, DO-35:75 | 5 | D33, D34, D35, D36, D37 |
| 893 114148AANA | 5 | DIODE-SIG, 1N4148, DO-35:75 | 2 | D38, D39 |
| 893 290031CB | | DIODE-ZEN, UZ-27BM, DO-35:0 | 1 | D41 |
| 893 290031QB | | DIODE-ZEN, UZ-4. 3B, DO-35:0 | 1 | D9 |
| 893 290031TB | | DIODE-ZEN, UZ-15BM DO-35:0 | 1 | D8 |
| 893 399060AA | | DIODE-REC, EK-04, DO-41:40V | 6 | D1, D2, D3, D4, D5, D6 |
| 893 399060AA | 1 | DIODE-REC, EK-04, DO-41:40V | 1 | D13 |
| 911 122707DA | | REF-CF, 27, 5%, 1/4W:250V, -3 | 1 | R101 |
| 911 125107DA | 1 | REF-CF, 51, 5%, 1/4W:250V, -3 | 3 | R54, R55, R56 |
| 911 131207DA | | REF-CF, 120, 5%, 1/4W:250V, - | 3 | R70, R71, R72 |
| 911 132207DA | | REF-CF, 220, 5%, 1/4W:250V, - | 3 | R46, R47, R48 |
| 911 132207DA | 1 | REF-CF, 220, 5%, 1/4W:250V, - | 2 | R49, R103 |
| 911 135607DA | | REF-CF, 560, 5%, 1/4W:250V, - | 2 | R67, R68 |
| 911 141207DA | 2 | REF-CF, 1. 2K, 5%, 1/4W:250V, | 5 | R24, R25, R26, R27, R28 |
| 911 141207DA | 3 | REF-CF, 1. 2K, 5%, 1/4W:250V, | 4 | R29, R30, R104, R105 |
| 911 141207DA | 4 | REF-CF, 1. 2K, 5%, 1/4W:250V, | 1 | R106 |
| 911 143307DA | 1 | REF-CF, 3. 3K, 5%, 1/4W:250V, | 4 | R40, R41, R42, R43 |
| 911 143307DA | 2 | REF-CF, 3. 3K, 5%, 1/4W:250V, | 2 | R44, R45 |
| 911 144707DA | 1 | REF-CF, 4. 7K, 5%, 1/4W:250V, | 7 | R1, R2, R3, R4, R5, R6, R7 |
| 911 144707DA | 2 | REF-CF, 4. 7K, 5%, 1/4W:250V, | 5 | R8, R9, R12, R13, R15 |
| 911 144707DA | 3 | REF-CF, 4. 7K, 5%, 1/4W:250V, | 5 | R16, R17, R25, R26, R27 |

| CODE NUMBER | CC¦EC | SPECIFICATION | QT'Y | LOCATION |
|---|---|---|---|---|
| 911 144707DA | 4 | REF-CF, 4.7K, 5%, 1/4W:250V, | 1 | R45, R50 |
| 911 146807DA | | REF-CF, 6.8K, 5%, 1/4W:250V, | 2 | R63, R64 |
| 911 146807DA | 1 | REF-CF, 6.8K, 5%, 1/4W:250V, | 1 | R108 |
| 911 151007DA | 1 | REF-CF, 10K, 5%, 1/4W:250V, - | 5 | R33, R34, R35, R37, R38 |
| 911 151007DA | 2 | REF-CF, 10K, 5%, 1/4W:250V, - | 2 | R42, R104 |
| 911 151007DA | 3 | REF-CF, 10K, 5%, 1/4W:250V, - | 1 | R107 |
| 911 151507DA | | REF-CF, 15K, 5%, 1/4W:250V, - | 1 | R57 |
| 911 151507DA | 1 | REF-CF, 15K, 5%, 1/4W:250V, - | 2 | R58, R59 |
| 911 152207DA | 1 | REF-CF, 22K, 5%, 1/4W:250V, - | 1 | R51 |
| 911 154707DA | | REF-CF, 47K, 5%, 1/4W:250V, - | 2 | R43, R44 |
| 911 156207DA | | REF-CF, 62K, 5%, 1/4W:250V, - | 1 | R62 |
| 911 161007DA | | REF-CF, 100K, 5%, 1/4W:250V, | 1 | R74 |
| 911 161607DA | 1 | REF-CF, 160K, 5%, 1/4W:250V, | 1 | R52 |
| 911 161807DA | | REF-CF, 180K, 5%, 1/4W:250V, | 1 | R53 |
| 911 442005DA | | REF-MF, 2K, 1%, 1/4W:250V, -1 | 1 | R61 |
| 911 442005FA | | REF-MF, 2K, 1%, 1/2W:350V, -3 | 1 | R60 |
| 911 451205DA | | REF-MF, 12K, 1%, 1/4W:250V, - | 1 | R76 |
| 911 453605DB | | REF-MF, 36K, 1%, 1/4W:250V, - | 1 | R75 |
| 915 256100HZAHNE | 1 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 5 | C62, C63, C64, C65, C66 |
| 915 256100HZAHNE | 2 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 5 | C67, C68, C69, C70, C71 |
| 915 256100HZAHNE | 3 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 5 | C72, C73, C74, C75, C76 |
| 915 256100HZAHNE | 4 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 5 | C77, C78, C79, C80, C81 |
| 915 256100HZAHNE | 5 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 5 | C82, C83, C84, C85, C86 |
| 915 256100HZAHNE | 6 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 5 | C87, C88, C89, C90, C91 |
| 915 256100HZAHNE | 7 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 5 | C92, C93, C94, C95, C96 |
| 915 256100HZAHNE | 8 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 5 | C97, C98, C99, C20, C103 |
| 915 256100HZAHNE | 9 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 3 | C104, C105, C151 |
| 915 256100HZAHNE | 10 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 1 | C152 |
| 915 312220HJHH | | CAP-CERAMIC, 220J, 1H, SL:22 | 2 | C1, C2 |
| 915 312300HJHH | | CAP-CERAMIC, 300J, 1H, SL:30 | 4 | C30, C31, C32, C33 |
| 915 313100HJXH | | CAP-CERAMIC, 101J, 1H, NPO:1 | 2 | C26, C28 |
| 915 313100HJXH | 1 | CAP-CERAMIC, 101J, 1H, NPO:1 | 2 | C106, C107 |
| 915 313100HJXH | 2 | CAP-CERAMIC, 101J, 1H, NPO:1 | 2 | C108, C109 |
| 915 323470HKPH | | CAP-CERAMIC, 471K, 1H, Y5P:4 | 1 | C54 |
| 915 325470HZVH | | CAP-CERAMIC, 473Z, 1H, Y5V:4 | 3 | C13, C14, C15 |
| 915 336100HZVH | 1 | CAP-CERAMIC, 104Z, 1H, Y5V:1 | 5 | C3, C4, C6, C7, C10 |
| 915 336100HZVH | 2 | CAP-CERAMIC, 104Z, 1H, Y5V:1 | 4 | C11, C12, C51, C59 |
| 915 336100HZVH | 3 | CAP-CERAMIC, 104Z, 1H, Y5V:1 | 3 | C100, C101, C102 |
| 916 164220LJAH | | CAP-MYLAR, 222J, 2A, 5P: (T) 1 | 2 | C26, C27 |
| 916 165100LKAH | 1 | CAP-MYLAR, 103K, 2A, 5P:10NF | 2 | C8, C50 |
| 916 166100HJAH | | CAP-MYLAR, 104J, 1H, 5P:100N | 1 | C52 |

| CODE NUMBER | CC¦EC | SPECIFICATION | QT'Y | LOCATION |
|---|---|---|---|---|
| 917 121100HM | | CAP-AL. ELEC, 105M, 1H: (T) 50 | 1 | C16 |
| 917 121100HM | 1 | CAP-AL. ELEC, 105M, 1H: (T) 50 | 1 | C108 |
| 917 121470HM | 1 | CAP-AL. ELEC, 475M, 1H: (T) 50 | 5 | C44, C45, C46, C47, C48 |
| 917 121470HM | 2 | CAP-AL. ELEC, 475M, 1H: (T) 50 | 1 | C49 |
| 917 122220HM | | CAP-AL. ELEC, 226M, 1H: (T) 50 | 1 | C34 |
| 917 123100CM | 1 | CAP-AL. ELEC, 107M, 1C: (T) 16 | 5 | C17, C24, C56, C19, C25 |
| 917 123100CM | 2 | CAP-AL. ELEC, 107M, 1C: (T) 16 | 4 | C18, C22, C23, C21 |
| 917 742100HM | | CAP-AL. ELEC, 106M, 1H, 105C: | 5 | C35, C36, C37, C38, C39 |
| 917 742100HM | 1 | CAP-AL. ELEC, 106M, 1H, 105C: | 4 | C40, C41, C42, C43 |
| 937 120204BA | 1 | MAG-CORE, FERRITE, BEAD:BEA | 7 | L1, L2, L3, L4, L5, L6, L7 |
| 937 120204BA | 2 | MAG-CORE, FERRITE, BEAD:BEA | 5 | L8, L9, L10, L11, L12 |
| 937 120204BA | 3 | MAG-CORE, FERRITE, BEAD:BEA | 2 | L15, L16 |
| 937 120208AA | 1 | MAG-CORE, FERRITE, BEAD:BEA | 1 | BF7 |
| 937 120208AA | 2 | MAG-CORE, FERRITE, BEAD:BEA | 2 | L17, L18 |
| 937 120208AA | 3 | MAG-CORE, FERRITE, BEAD:BEA | 1 | BF8 |
| 937 120208AA | 4 | MAG-CORE, FERRITE, BEAD:BEA | 2 | BF5, BF6 |
| 943 150021AC | 3 | FILTER-LPF, LC, 100PF:CFI 0 | 4 | BF1, BF2, BF3, BF4 |
| 943 150021AC | 4 | FILTER-LPF, LC, 100PF:CFI 0 | 2 | BF7, BF8 |
| 953 260023BC | | FUSE-CLIP, 5.2X20, 30MOHM:8 | 6 | |
| 877 308255AD | | IC-MPU, 8255, INTERFACE | 1 | U49 |
| 935 220330EDNA | | CON-WALL HEADER, 30P, 2R | 1 | CN25 |
| 893 290032AF | | DIODE-ZEN, UZ-6.2B, DO-41 | 1 | D40 |

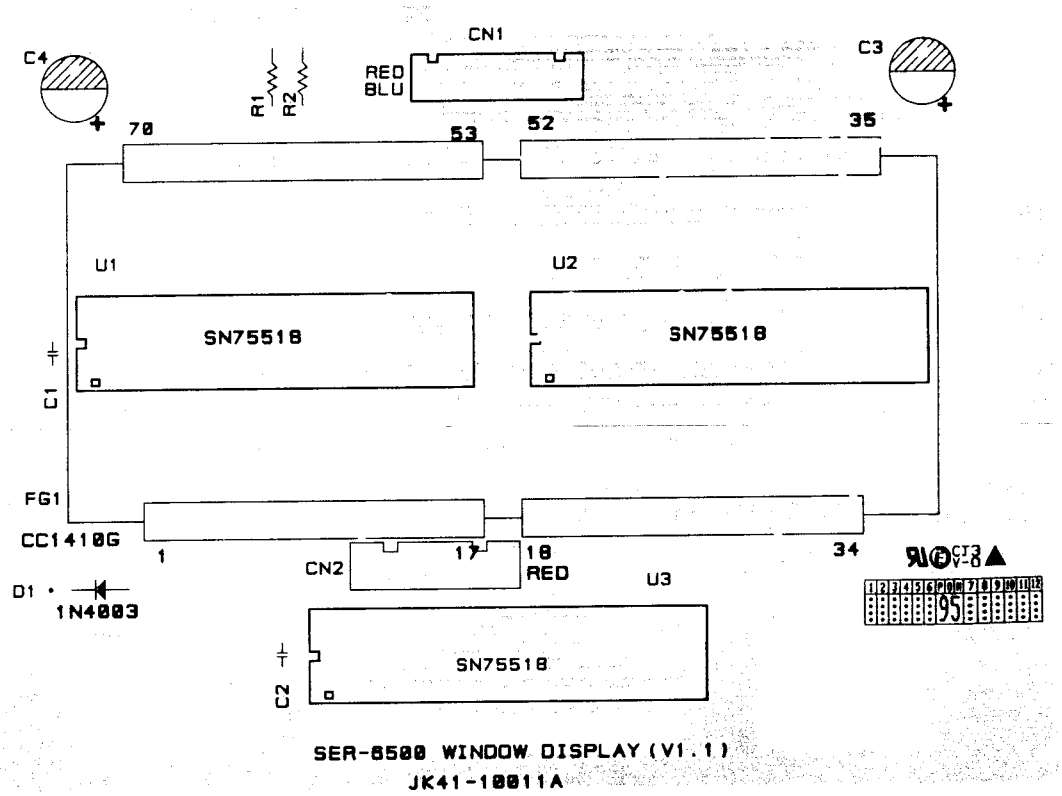
## 9-1-2 Option PCB (Top View)



# OPTION PCB

| CODE NUMBER | ¦CC¦EC¦ | DESCRIPTION/SPECIFICATION | Q'TY | LOCATION |
|---|---|---|---|---|
| JK92-50008A | | ASS'Y-I/F, PCB:SER-6500, SA | 1 | |
| JK96-50005A | | ASS'Y-PCB/AUTO, I/F:SER-65 | 1 | |
| JK41-10010A | | PCB-SUB:SER-6500, 2L, 168.5 | 1 | |
| 871 100232AB | | IC-TTL, 232, LINE DRIVER:DI | 3 | U105, U106, U113 |
| 873 790032AANB | 1 | IC-MOS, 74HCT32, GATE:DIP, 1 | 1 | U116 |
| 873 790138AC | | IC-MOS, 74HCT138, DECODER:D | 1 | U102 |
| 873 790139AC | | IC-MOS, 74HCT139, DECODER:D | 1 | U103 |
| 873 790574AC | | IC-MOS, 74HCT574, LATCH:DIP | 1 | U101 |
| 887 135472SGSA | | IC-HYB, R-NETWORK, 9P:SIP, 9 | 1 | RA101 |
| 891 390006XA | | TR-NPN, KSC945, TO-92:0.25W | 1 | Q101 |
| 893 399060AA | 1 | DIODE-REC, EK-04, DO-41:40V | 4 | D102, D103, D104, D105 |
| 893 399060AA | 2 | DIODE-REC, EK-04, DO-41:40V | 4 | D106, D107, D108, D109 |
| 911 131207DA | | REF-CF, 120, 5%, 1/4W:250V, - | 1 | R101 |
| 911 132207DA | | REF-CF, 220, 5%, 1/4W:250V, - | 1 | R100 |
| 911 144707DA | | REF-CF, 4.7K, 5%, 1/4W:250V, | 2 | R102, R105 |
| 911 151007DA | | REF-CF, 10K, 5%, 1/4W:250V, - | 1 | R104 |
| 915 256100HZAHNE | 2 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 4 | C105, C106, C107, C108 |
| 915 256100HZAHNE | 3 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 4 | C109, C110, C111, C112 |
| 915 256100HZAHNE | 4 | CAP-CERAMIC, 104Z, 1H, Z5U:1 | 3 | C113, C114, C115 |
| 915 312300HJHH | | CAP-CERAMIC, 300J, 1H, SL:30 | 2 | C116, C117 |
| 916 164220LJAH | | CAP-MYLAR, 222J, 2A, 5P: (T) 1 | 1 | C212 |
| 917 121470HM | 1 | CAP-AL.ELEC, 475M, 1H: (T) 50 | 4 | C209, C210, C213, C214 |
| 917 121470HM | 2 | CAP-AL.ELEC, 475M, 1H: (T) 50 | 2 | C204, C205 |
| 917 122100HM | 1 | CAP-AL.ELEC, 106M, 1H: (T) 50 | 4 | C208, C211, C215, C216 |
| 917 122100HM | 2 | CAP-AL.ELEC, 106M, 1H: (T) 50 | 4 | C202, C203, C206, C207 |
| 917 122100HM | 3 | CAP-AL.ELEC, 106M, 1H: (T) 50 | 1 | C217 |
| 917 122220HM | | CAP-AL.ELEC, 226M, 1H: (T) 50 | 2 | C118, C119 |
| 917 123100CM | | CAP-AL.ELEC, 107M, 1C: (T) 16 | 1 | C201 |
| 937 120204BA | 1 | MAG-CORE, FERRITE, BEAD:BEA | 4 | L112, L113, L114, L115 |
| 937 120204BA | 2 | MAG-CORE, FERRITE, BEAD:BEA | 2 | L116, L117 |
| 937 120207AB | | MAG-CORE, FERRITE, BEAD:BEA | 3 | L118, L119, L120 |
| 24719-006-010 | | BATTERY-NICAD:3/60DK | 1 | BT1 |
| 3722-000002 | | JACK-MODULAR:8P/2C, 8P, AU, | 2 | CN103, CN104 |
| 877 982452KA | | IC-MPU, 82C452A, ACE:PLCC, 6 | 1 | U104 |
| 887 135472SD | | IC-HYB, R-NETWORK, 6P:SIP, 6 | 1 | RA102 |
| 911 131207DA | | REF-CF, 120, 5%, 1/4W:250V, - | 1 | R101 |
| 935 145644JA | | CON-DIN, 44P, RECEPTACLE:ST | 1 | CN102 |
| 935 155132DCNA | 2 | CON-IC SOCKET, 32P:DIP, STR | 2 | U114, U115 |
| 941 130073AA | | OSC-CLOCK, 8M, 100:-, 5V, 40M | 1 | X101 |
| 937 120068AA | | MAG-CORE, FERRITE, TOROIDA: | 2 | |

# 9-1-3 WINDOW DISPLAY (Top View)

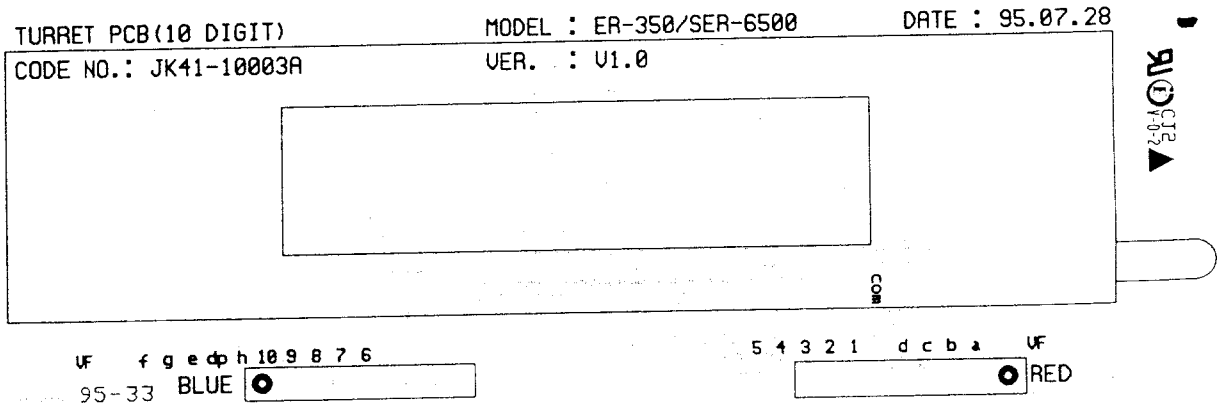



116(OA)/SER6500WINDOW/D16-104-MB/COMP/95.9.26

# WINDOW DISPLAY PCB

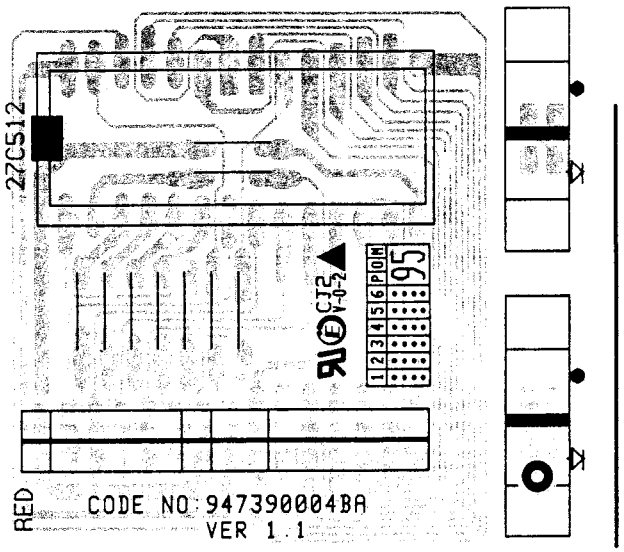
| CODE NUMBER | CC¦ EC | SPECIFICATION/DESCRIPTION | QT'Y | LOCATION |
|---|---|---|---|---|
| JK97-50009A | | ASS'Y-DISPLAY:SER-6500, SE | 1 | |
| JK39-40028A | | CBF-HARNESS:8P, 500MM, RED/ | 1 | CN2 |
| JK41-10011A | | PCB-WINDOW:SER-6500, 2L, 12 | 1 | |
| 02169-201-077 | | DIODE:1N4003 (T) | 1 | D1 |
| 873 275518AA | | IC-MOS, 75518, DRIVER:DIP, 4 | 2 | U1, U2 |
| 873 275518AA | 1 | IC-MOS, 75518, DRIVER:DIP, 4 | 1 | U3 |
| 895 449005AC | | DISPLAY-LCD, 22DIG:B/GREEN | 1 | FG1 |
| 911 151007DA | | REF-CF, 10K, 5%, 1/4W:250V, - | 2 | R1, R2 |
| 915 336100HZVH | | CAP-CERAMIC, 104Z, 1H, Y5V:1 | 1 | C1 |
| 917 123100LM | | CAP-AL. ELEC, 107M, 2A: (T) 10 | 1 | C4 |
| 917 843470CM | | CAP-AL, ELEC, 477M, 1C:470UF | 1 | C3 |
| 935 240322GA | | CON-BOX HEADER, 22P, 2MM:2R | 1 | CN1 |

# 9-1-4 Turret Display (Top View)

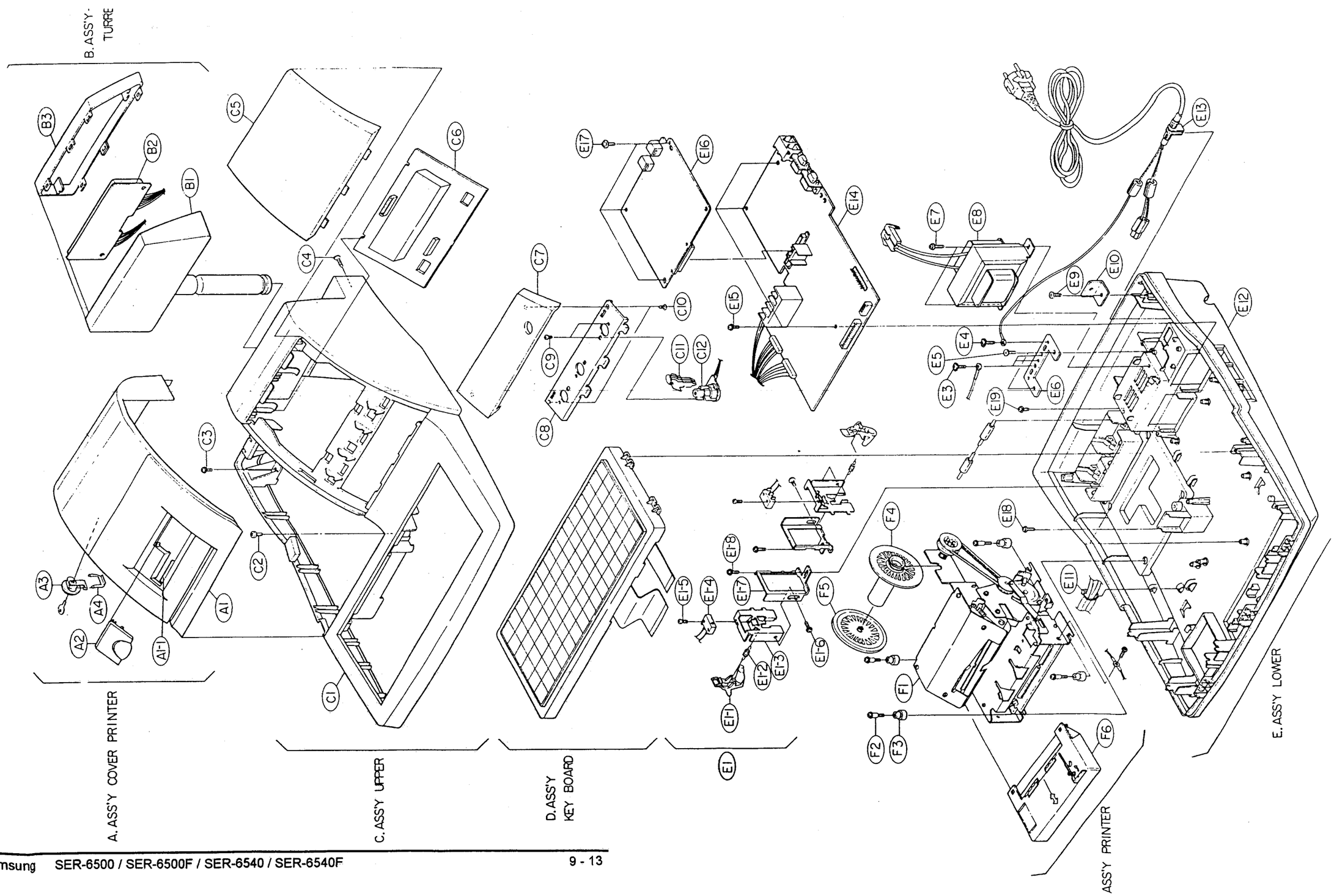

TURRET PCB(10 DIGIT)
MODEL : ER-350/SER-6500
DATE : 95.07.28
CODE NO.: JK41-10003A
VER. : V1.0
VF f g e dp h 10 9 8 7 6
95-33 BLUE
5 4 3 2 1 d c b a VF
RED

| CODE NUMBER | CC¦ EC | SPECIFICATION/DESCRIPTION | QT`Y | LOCATION |
|---|---|---|---|---|
| JK97-50008A | | ASS'Y-TURRET/DISPLAY, SER6500 | 1 | |
| JK03-20004A | | V. F. D, 10DIGIT, 4. 2V, 0. 125A, | 1 | |
| JK39-40002A | | CBF-HARNESS, 22P, 400MM | 1 | |
| JK41-10003A | | PCB-TURRET(10G), 127*42*T1. 6 | 1 | |
| 821 397027AA | | PLT, PAD-DIGITRON RUBBER | 1 | |

# 9-1-5 FISCAL BOARD (TOP VIEW)




| CODE NUMBER | CC¦ EC | SPECIFICATION/DESCRIPTION | QT'Y | LOCATION |
|---|---|---|---|---|
| JK39-40305A | | CBF-HARNESS, 30P, 350MM, UL2615 | 1 | |
| 883 627512BAND | | IC-MEM, EPROM, 27C512 | 1 | |
| 947 390004BA | | PCB-FISCAL | 1 | |
| 955 005001AAAB | | CBF-JUMP WIRE | 10 | |


B. ASS'Y - TURRE
B3
B2
B1
C5
C6
C4
C7
C10
C9
C8
C11
C12
E17
E16
E14
E15
E7
E8
E13
E9
E10
E12
E4
E5
E3
E6
E19
E18
E11
F4
F5
F1
F2
F3
F6
E1-8
E1-7
E1-5
E1-4
E1-6
E1-2
E1-3
E1-1
E1
C3
C2
C1
A3
A4
A2
A1-1
A1
A. ASS'Y COVER PRINTER
C. ASS'Y UPPER
D. ASS'Y KEY BOARD
ASS'Y PRINTER
E. ASS'Y LOWER

A. ASS'Y COVER PRINTER

| LO.NO | CODE NO. | DESCRIPTION/SPECIFICATION | Q'TY | REMARK |
|---|---|---|---|---|
| A1 | JK72-60018A | PLT,COVER PRINTER;ABS(V0) VE-0812 C7425 | 1 | ERP-300V |
| | JK72-60019A | PLT,COVER PRINTER"A";ABS(V0) VE-0812 C74 | 1 | ERP-300A,OPTION |
| A1-1 | JK70-10007A | IMP,PLATE CUTTER PAPER;STS304,T0.3 | 1 | |
| A2 | JK72-60020A | PLT,WINDOW JOURNAL;ACRYL | 1 | |
| A3 | 831 561002AD | COM,LOCK KEY ASS'Y | 1 | |
| A4 | 813 390024AA | IMP,CLIP PLATE;SWP T0.5 | 1 | |

B. ASS'Y TURRET

| LO.NO | CODE NO. | DESCRIPTION/SPECIFICATION | Q'TY | REMARK |
|---|---|---|---|---|
| B1 | JK72-60021A | PLT,TURRET BODY;ABS(V0) VE-0812 C7425 | 1 | |
| B2 | JK97-50008A | ASS'Y TURRET PCB | 1 | |
| B3 | JK72-60022A | PLT,WINDOW TURRET;PC LEXAN 121R C21029 | 1 | |

C. ASS'Y UPPER

| LO.NO | CODE NO. | DESCRIPTION/SPECIFICATION | Q'TY | REMARK |
|---|---|---|---|---|
| C1 | JK72-60017A | PLT,CASE-UPPER;ABS(V0) VE-0812 C7425 | 1 | |
| C2 | 842 344022AB | TAPPING,PH+,M4,L10/SM20C,ZPC3 | 1 | |
| C3 | 842 344022AB | TAPPING,PH+,M4,L10/SM20C,ZPC3 | 1 | |
| C4 | 841 214022BA | MACHINE,FH+,M4,L10/SM20C,NI PLT | 1 | |
| C5 | JK72-60023A | PLT,WINDOW DISPLAY;PC LEXAN 121R C21029 | 1 | |
| C6 | JK97-50009A | ASS'Y DISPLAY PCB | 1 | |
| C7 | JK72-60024A | PLT,COVER MODE S/W;ABS(V0) VE-0812 C7425 | 1 | SER-6500 |
| | JK72-60033A | PLT,COVER MODE S/W;ABS(V0) VE-0812 C7425 | 1 | SER-6540 |
| C8 | JK70-10006A | IMP,BRKT MODE S/W;SECC T1.0 | 1 | |
| C9 | 842 343013AB | TAPPING,PH+,M3XL8/ZPC3,SM20C | 2 | |
| C10 | 842 840007BC | TAPPING,PH+,W,M3XL6/ZPC3,SM20C | 2 | |
| C11 | 353 033154AAAH | ASS'Y MODE KEY;REG,VD,Z,P,C | 1 | |
| C12 | 933 230034AA | SWITCH ROTARY,10;12VDC,30MA | 1 | |

D. ASS'Y KEY BOARD

| LO.NO | CODE NO. | DESCRIPTION/SPECIFICATION | Q'TY | REMARK |
|---|---|---|---|---|
| | JK75-10002A | KEY BOARD ASS'Y;FLATE TYPE | 1 | SER-6500 |
| | JK75-10015A | KEY BOARD ASS'Y;MEMBRANE TYPE | 1 | SER-6540 |

E. ASS'Y LOWER

| LO.NO | CODE NO. | DESCRIPTION/SPECIFICATION | Q'TY | REMARK |
|---|---|---|---|---|
| E1 | 353 043052AAAA | PAPER END ASS'Y | 1 | |
| E1-1 | 821 390164AA | PLT,KNOB PAPER END;POM BLACK | 2 | |
| E1-2 | 831 521070AA | COM,SPRING PAPER END;SUS304-WPB PI0.26 | 2 | |
| E1-3 | 813 390126AA | IMP,BRKT PAPER END;SECC T1.5 | 2 | |
| E1-4 | 933 250068AA | SWITCH MICRO,SPDT;125V,30V,0.1A | 2 | |
| E1-5 | 841 312024BB | MACHINE,PH+,M2X12;ZPC3,SM20C | 2 | |
| E1-6 | 847 501009CA | SPECIAL,TAPTITE,PH+,W,M4X8;ZPC3,SWRCH18A | 2 | |
| E1-7 | 813 390127AA | IMP,SLIDE BRKT;SECC T1.5 | 2 | |
| E1-8 | 842 840009AA | TAPPING,PH+,W,M3X8;ZPC3,SM20C | 2 | |

## E. ASS'Y LOWER

| LOC. | CODE NUMBER | DESCRIPTION / SPECIFICATION | Q'TY | REMARK |
|---|---|---|---|---|
| E2 | 821 390165AA | PLT,P/END ROLLER;POM,WHITE | 2 | |
| E3 | 842 840029AA | TAPPING,GROUND,RH+,M3X8;SWRCH | 3 | |
| E4 | 847 507003AA | TAPPING,GROUND,BH+,M4X8;SWRCH | 1 | |
| E5 | 842 840007BG | TAPPING,GROUND,PH+,W,M3X10;ZPC3,SM20C | 2 | |
| E6 | 813 390119AA | IMP,GROUND PLATE;EGI T1.2 | 1 | |
| E7 | 842 344022AB | TAPPING,PH+,W,M4X10;ZPC3,SM20C | 2 | |
| E8 | JK26-20004A | TRANS POWER;6P,EI66X35MM,S-52,60HZ/120V | 1 | U.S.A. |
| E8 | JK26-20003A | TRANS POWER;6P,EI66X35MM,S-52,50HZ/230V | 1 | EUROPE |
| E9 | 842 344022AB | TAPPING,PH+,2,M4,L10;SM20C,ZPC3 | 1 | |
| E10 | JK70-10002A | IMP,BRACKET CASING;SECC T1.6 | 1 | |
| E11 | 857 160020A | MISCEL CABLE TIE,L102;NATURAL NYLON6/6 | 1 | |
| E12 | JK72-60016A | PLT,CASE LOWER;ABS(V0) VE-0812 C7425 | 1 | |
| E13 | JK39-10001A | CBF-POWER CORD;ATTACH,EUROPE,250/10A,IVO | 1 | EUROPE |
| E13 | JK39-10003A | CBF-POWER CORD,ATTACH,OP-16,250V/7.5A,IVORY | 1 | U.S,.A. |
| E13 | JK39-10008A | CBF-POWER CORD,ATT,OP16B,250V/10A | 1 | UK |
| E14 | JK92-50007A | ASS'Y MAIN PCB | 1 | SER-6500/6540 |
| E15 | 842 840007BG | TAPPING,PH+,W,M3X10;ZPC3,SM20C | 4 | |
| E16 | JK92-50008A | ASS'Y I/F PCB | 1 | OPTION |
| E17 | 842 840007BG | TAPPING,PH+,W,M3X10;ZPC3,SM20C | 3 | |

## F. ASS'Y PRINTER

| LOC. | CODE NUMBER | DESCRIPTION / SPECIFICATION | Q'TY | REMARK |
|---|---|---|---|---|
| F1 | 353 033106FBAD | IMPACT DOT PRINTER ;ERP-300V | 1 | |
| | 353 033106FBAE | IMPACT DOT PRINTER ; ERP-300A | 1 | OPTION |
| F2 | 842 840021AA | TAPPING,STOPPER,RH+,2,M3,L17.5/ZPC3 SWRC | 4 | |
| F3 | 821 397002AB | PLT,CUSHION-PRINTER/NR(BLK) 50 | 4 | |
| F4 | 996 139002JE | SPOOL ASS'Y/ECR01-181, A/S | 1 | |
| F5 | 996 139002JF | DISK/ 18628-01000AB,A/S | 1 | |
| F6 | 811 390004CA | SUA,RIBBON-CASSETTE/2785FN ERC-18 PURPLE | 1 | |

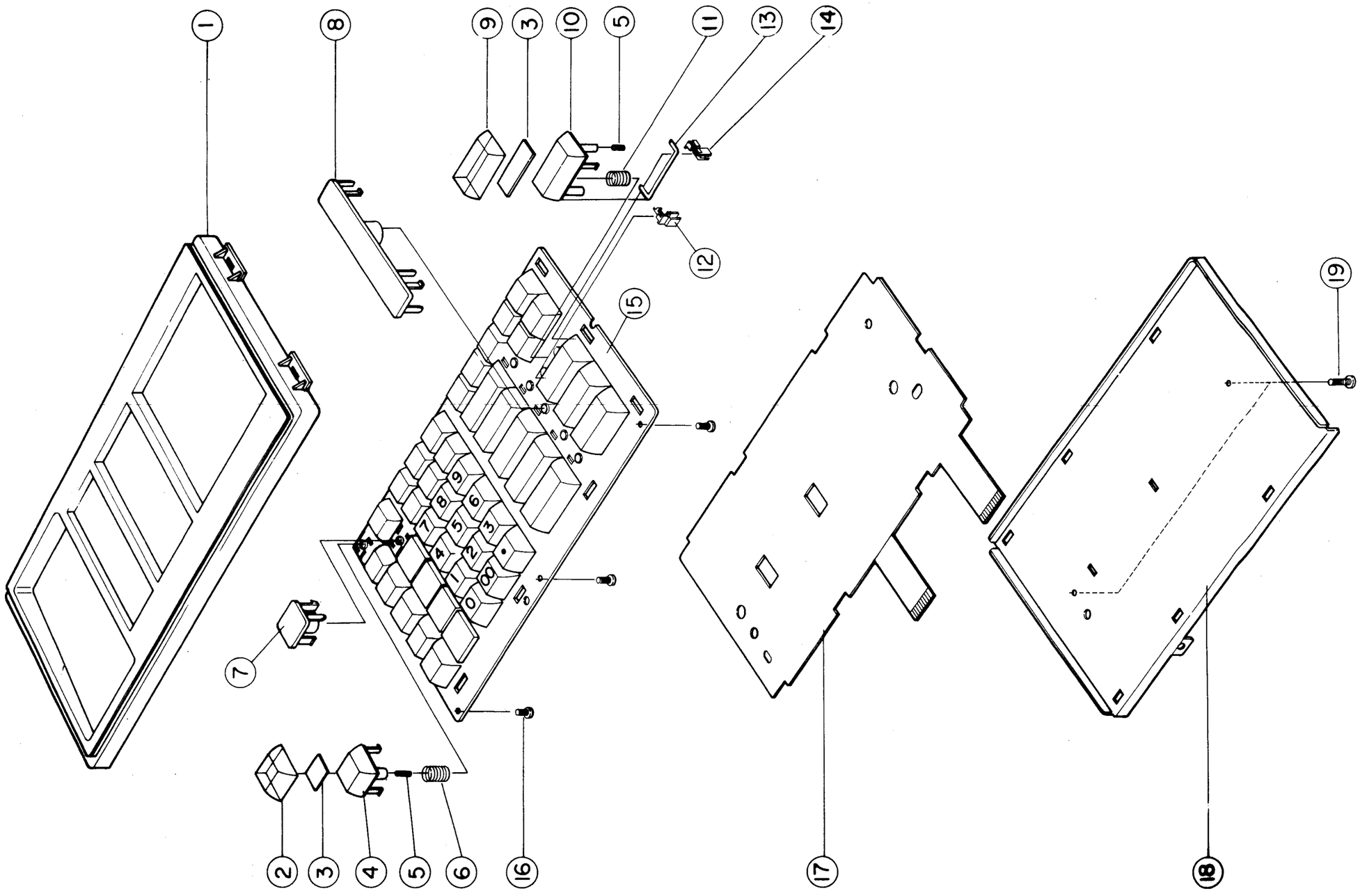
ASSY KEY-BOARD (MEMBRANE TYPE)

| LO.NO | CODE NUMBER | DESCRIPTION/SPECIFICATION | Q'TY | REAMARK |
|---|---|---|---|---|
| 1 | JK72-60028A | LT,KBD-HOUSING:ABS(V0)-90KEY | 1 | |
| 2 | 27624-702-110 | KEY-CAP S:PC 1*1(S-Z0513-71 #01) | 0 | |
| 3 | 825 119331KA | INC,LABEL-KEY TOP SET:MOJO 100GR | 1 | |
| 4 | 27623-701-310 | KEY-TOP S:ABS 1*1(302KAS-014-01) | 1 | |
| 5 | 26674-710-810 | COIL-SPRING:SUS CONTACT(601KAS-001-01) | 1 | |
| 6 | 26674-710-610 | COIL-SPRING:SWPA RETURN 1*1U(601KAS) | 1 | |
| 9 | 27624-702-210 | KEY-CAP L:PC 1*2(S-Z0513-75 #01) | 1 | |
| 10 | 821 390160AA | PLT,KEY-TOP(1*2);302 KAS-032-00,ABS | 1 | |
| 11 | 831 522056AA | COM,COIL-SPRING RETURN,1*2 | 1 | |
| 12 | 821 390158AA | PLT,HOOK-A:541KAS-001-01 ,POM | 1 | |
| 13 | 813 390124AA | IMP,SPACE-BAR:321KAS-019-90,SUS 304 | 1 | |
| 13 | 813 390124AA | IMP,SPACE-BAR:321KAS-019-90,SUS 304 | 11 | |
| 13 | 813 390124AA | IMP,SPACE-BAR:321KAS-019-90,SUS 304 | 6 | |
| 14 | 821 390158BA | PLT,HOOK-B;541KAS-002-01 ,POM | 9 | |
| 15 | 821 390139AA | PLT,FRAME:POM T1.6 | 1 | |
| 15 | 821 390144AA | PLT,FRAME:POM T1.6 | 1 | |
| 16 | 842 840009AA | TAPPING PH,W,2S,M3,L8,PH,L8,ZPC3,SM20C | 8 | |
| 17 | 353 033055AAAA | FPC-ASSY | 1 | |
| 17 | 821 390140AA | PLT,FPC-A | 1 | |
| 17 | 821 390141AA | PLT,FPC-B | 1 | |
| 17 | 353 033055AAAC | FPC-ASSY | 1 | |
| 17 | 821 390140BA | PLT,FPC-A:PETP T0.125 | 1 | |
| 17 | 821 390141BA | PLT,FPC-B:PETP T0.125 | 1 | |
| 18 | 813 390121AA | IMP,BASE-PLATE:SECC T0.8 | 1 | |
| 18 | 813 390122AA | IMP,BASE-PLATE:SECC T0.8 | 1 | |
| | 23554-701-410 | SWITCH-KEY TOP 0:ABS(302KAS-019-05) | 1 | |
| | 23554-701-010 | SWITCH-KEY TOP 00:ABS(302KAS-017-31) | 1 | |
| | 23554-701-110 | SWITCH-KEY TOP .:ABS(302KAS-017-32) | 1 | |
| | 23554-700-210 | SWITCH-KEY TOP 1:ABS(302KAS-017-21) | 1 | |
| | 23554-700-310 | SWITCH-KEY TOP 2:ABS(302KAS-017-22) | 1 | |
| | 23554-700-410 | SWITCH-KEY TOP 3:ABS(302KAS-017-23) | 1 | |
| | 23554-700-510 | SWITCH-KEY TOP 4:ABS(302KAS-017-24) | 1 | |
| | 23554-701-310 | SWITCH-KEY TOP 5:ABS(302KAS-018-05) | 1 | |
| | 23554-700-610 | SWITCH-KEY TOP 6:ABS(302KAS-017-26) | 1 | |
| | 23554-700-710 | SWITCH-KEY TOP 7:ABS(302KAS-017-27) | 1 | |
| | 23554-700-810 | SWITCH-KEY TOP 8:ABS(302KAS-017-28) | 1 | |
| | 23554-700-910 | SWITCH-KEY TOP 9:ABS(302KAS-017-29) | 1 | |
| | 842 840009AA | TAPPING,PH+,W,2S,M3,L8:PH,+,2,M3,L8 | 8 | |
| 19 | 842 343022AB | TAPPING,PH+,2,M3,PH+,L10,PH,ZPC3,SM20C | 2 | |

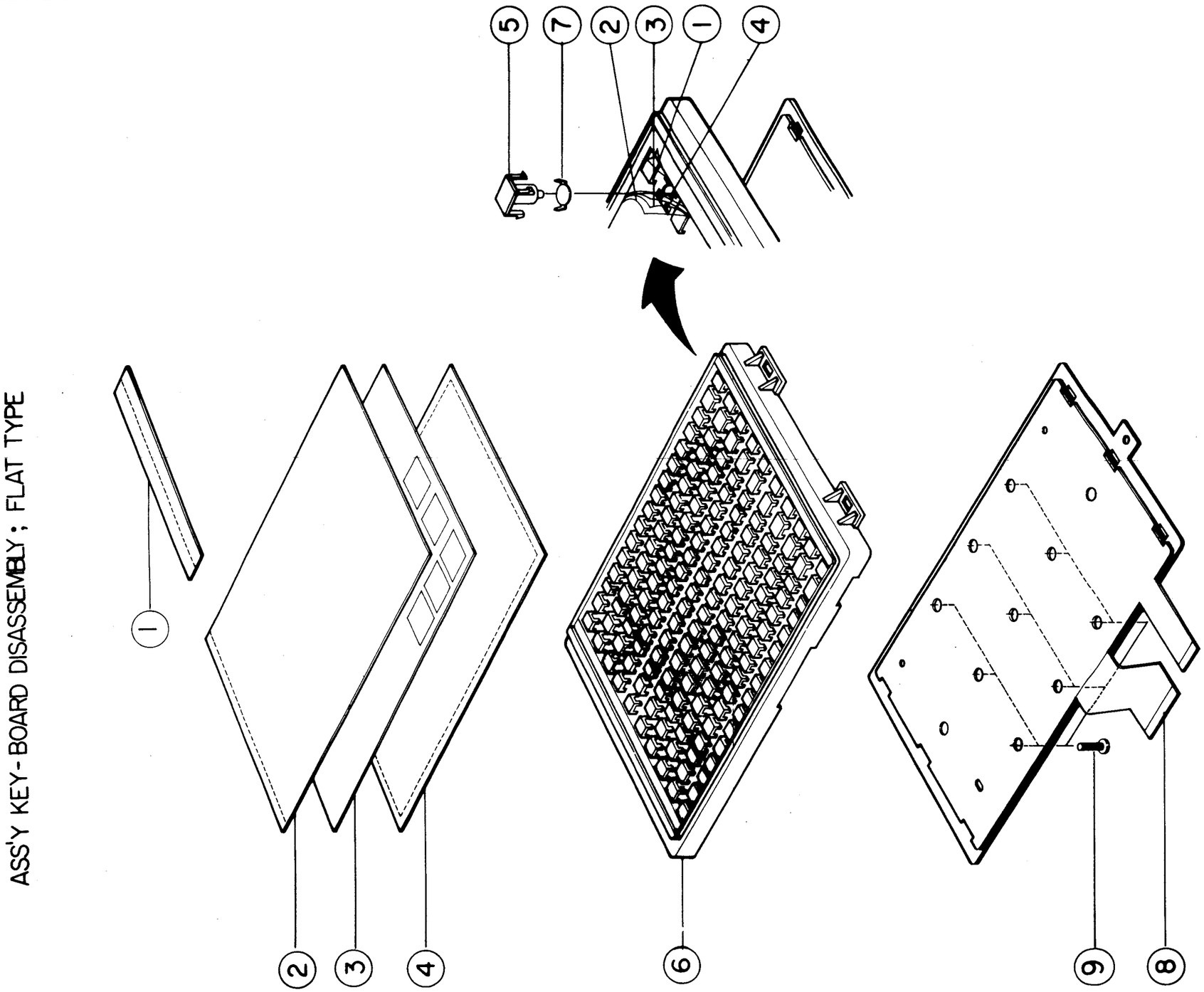
ASSY KEY-BOARD (FLAT TYPE)

| LO.NO | CODE NUMBER | DESCRIPTION/SPECIFICATION | Q'TY | REMARKS |
|---|---|---|---|---|
| | JK75-10002A | KEY-BOARD ASSY | 1 | |
| 1 | 821 390148AA | PLT,KBD GUIDE SHEET:PC T0.5 | 1 | |
| 2 | 821 390146AA | PLT,KBD PROTECT SHEET-A:PC T0.5 | 1 | |
| 3 | 825 119331PA | INC,LABEL-SHEET | 1 | |
| 4 | 821 390147AA | PLT,KBD PROTECT-SHEET-B:PC T.15 | 1 | |
| 5 | 821 390159AA | PLT,KEY-TOP 1*1,ABS,350KFS-003-90 | 160 | |
| 6 | 821 390145AA | PLT,FRAME:ABS(V0) T1.6,ER-4100 | 1 | |
| 7 | 813 390125AA | IMP,METALDOM,SUS,304,341KAS-008-91 | 160 | |
| 8 | 353 033055AAAB | FPC-ASSY | 1 | |
| | 821 390140CA | PLT,FPC-A:PETP T0.125 | 1 | |
| | 821 390141CA | PLT,FPC-B:PETP T0.125,ER-4100 | 1 | |
| 8 | 813 390123AA | IMP,BASE-PLATE;SEC | 1 | |
| 9 | 842 343022AB | TAPPING,PH+,2,M3,L10:PH,2,L10,ZPC3 | 3 | |

## ASS'Y-KEY BOARD DISASSEMBLY : MEMBRANE TYPE

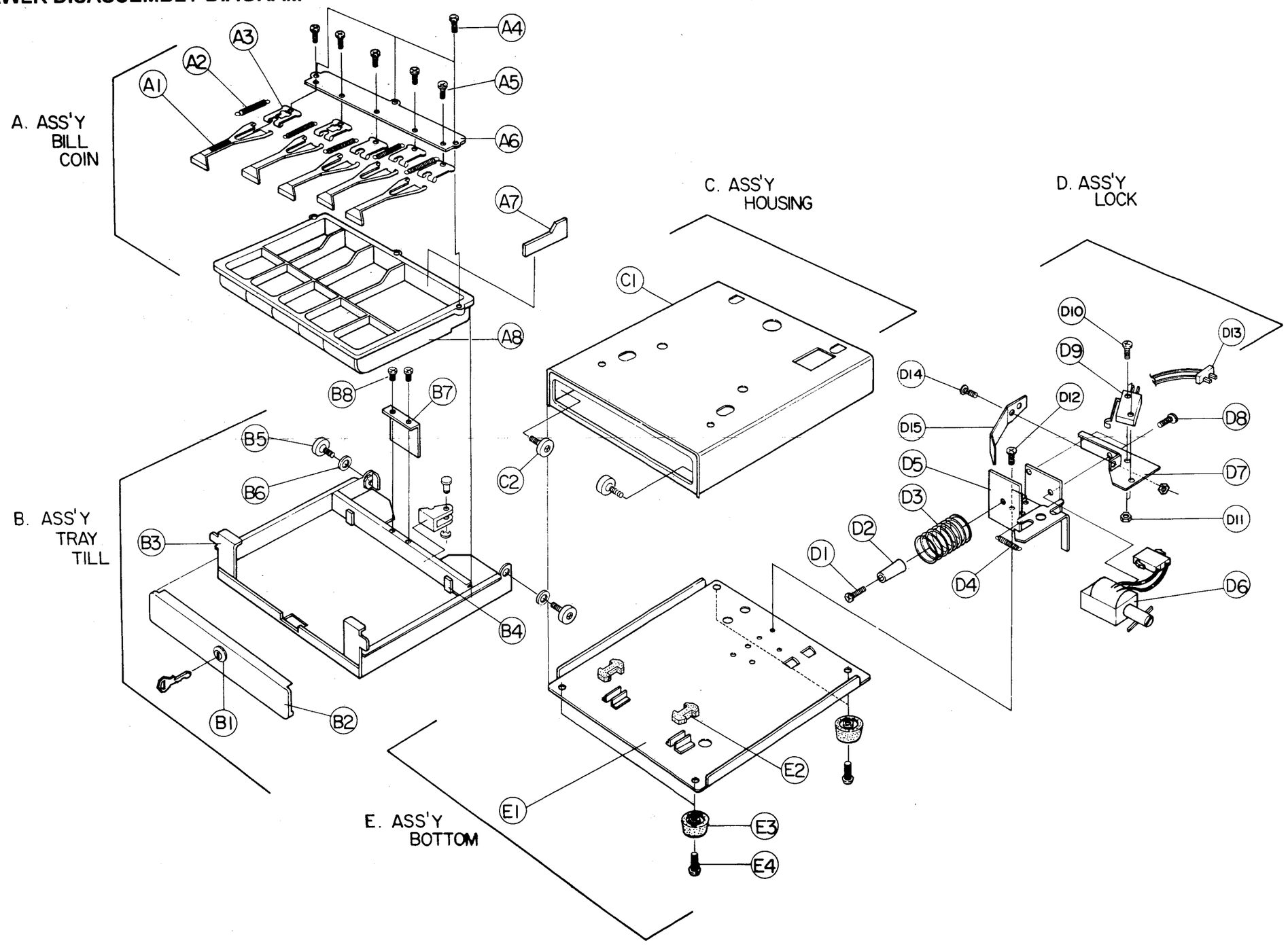


## ASS'Y-KEY BOARD DISASSEMBLY : FLAT TYPE



## DRAWER DISASSEMBLY DIAGRAM

(DRAWER DISASSEMBLY DIAGRAM)



A.ASSY-BILL COIN

| LO.NO | CODE NUMBER | DESCRIPTION/SPECIFICATIONS | Q'TY | REMARKS |
|---|---|---|---|---|
| A | 2D902-701-077 | ASSY BILL COIN | 1 | |
| A1 | 821 390002AA | PLT,LEVER PRESS:ACETAL,BLK | 4 | |
| A2 | 831 521006AA | COM,SPRING-LEVER PRESS:SUS-WH PI0.3 | 4 | |
| A3 | 813 390014AA | PLT,HOLDER-PRESS,ACETAL,BLK | 4 | |
| A4 | 841 613008BB | MACHINE,SCREW,BH+,M3X6:NO,BH,+,M3,L6,ZP | 3 | |
| A5 | 842 343008AB | TAPPING,PH+,2,M3,L6:PH,+,2,M3,L6,ZPC3,S | 4 | |
| A6 | 813 390002AA | IMP HOLDER-PLATE;SBHG T1.2 | 1 | |
| A7 | 821 390005AA | PLT,PARTETION-BILL:HIPS(HB) | 3 | |

B.ASSY-TRAY TILL

| | | | | |
|---|---|---|---|---|
| B | 2D902-701-051 | ASSY TRAY | 1 | |
| B1 | 831 561002AB | COM,LOCK KEY ASSY | 1 | |
| B2 | 813 390036AA | IMP,PANEL-FRONT:SBC1 T1.0 | 1 | |
| B3 | 2D903-701-076 | ASSY-SUB TRAY | 1 | |
| | 813 390025AA | IMP,SUPPORT-TRAY BRACKET:SBHG-1 T1.2 | 1 | |
| | 813 390034AA | IMP,TRAY-TILL:SBHG-1 T1.2 | 1 | |
| | 813 390053AA | IMP,BRACKET-SHAFT LOCK:SBHG-1 T1.5 | 1 | |
| | 813 390055AA | IMP,SUPPORT-TRAY:SBHG-1 T1.2 | 1 | |
| | 813 390056AA | IMP,SUPPORT-PANEL LH:SBHG-1 T1.5 | 1 | |
| | 813 390057AA | IMP,SUPPORT-PANEL RH:SBHG-1 T1.5 | 1 | |
| | 853 126001BB | NUT,HEX,2-M6:HEX,2,M6,-,ZPC3,SM20C, | 1 | |
| B4 | 821 390062AA | PLT,SPONGE-TENSION:SPONGE(ERD-550) | 2 | |
| B5 | 813 390096AA | IMP,ROLLER:DR-19-B1 PI19 | 2 | |
| B6 | 27308-203-001 | PLAIN WASHER | 2 | |
| B8 | 841 514013BB | MACHINE SCREW,TH+,M4*8 | 2 | |
| | 813 395000AA | IMP,SHAFT-LOCK:S45C PI5.0 | 1 | |
| | 841 213008BC | MACHINE,SCREW,FH+,M3X6:NO,FH,+,M3,L6,BL | 1 | |
| | 857 150008AG | MISCEL,RING,E,ID3,#3:ID3,OD7,T0.6,BLACK | 1 | |

C.ASSY-HOUSING

| | | | | |
|---|---|---|---|---|
| C1 | 2D903-701-051 | ASSY-SUB HOUSING | 1 | |
| | 813 390007AA | IMP,HOUSING:SBC-1 T1.0 DRAK BROWN | 1 | |
| | 813 390031AA | IMP,CHANNEL-LH:SBC-1 T1.6 DARK BROWN PI | 1 | |
| | 813 390032AA | IMP,CHANNEL-RH:SBC-1 T1.6 DARK BROWN PI | 1 | |
| | 813 390037AA | IMP,FRONT-PLATE:SBC-1 T1.0 DARK BROWN P | 1 | |
| | 813 390038AA | IMP,REAR-PLATE:SBC-1 T1.0 DARK BROWN PI | 1 | |
| | 813 390058AA | IMP,SUPPORT-CHANEL:SBC-1 T1.2 DARK BROW | 1 | |
| C2 | 813 390096AA | IMP,ROLLER: DR-19-B1 P119 | 2 | |

D.ASSY-LOCK

| | | | | |
|---|---|---|---|---|
| D | 2D903-701-001 | ASSY-LOCK | 1 | |
| D1 | 841 514028BA | MACHINE SCREW,TH+,M4*15 | 1 | |
| D2 | 831 313007AA | COM,RUBBER BUMPER:NR BL(ERD-550) | 1 | |
| D3 | 831 522004AA | COM,SPRING-PUSH:FZN BLK | 1 | |
| D4 | 831 521005AA | COM,SPRING-LOCK LEVER:SILVER | 1 | |
| D5 | 811 390003AA | SUA,BRACKET-LOCK ASS'Y:SBHG-1 T2.0 | 1 | |
| | 813 390029AA | IMP,LEVER-LOCK:SCP1 T2.3 | 1 | |
| | 857 110034AA | MISCEL,RIVET,SPECIAL:D4,L7.3,ZPC3,SUM24 | 1 | |
| D6 | 24793-700-101 | DC-SOLENOID ASS'Y;KSD-2013-S(200) | 1 | |
| D8 | 841 413008BB | MACHINE,SCREW,RH+,M3X6:NO,PH,+,M3,L6,ZP | 2 | |

E. ASSY-BOTTOM

| | | | | |
|---|---|---|---|---|
| E1 | 813 390035AA | IMP,BOTTOM-PLATE:SBHG-1 T0.8 | 1 | |
| E2 | 821 397005AA | PLT,RUBBER-STOPPER:NR BL | 2 | |
| E3 | 831 313006AA | COM,RUBBER FOOT | 4 | |
| E4 | 841 514028BA | MACHINE SCREW,TH+,M4*15 | 4 | |

# ERP-300V

| LOC. | | CODE NUMBER | DESCRIPTION / SPECIFICATION | REARKS |
|---|---|---|---|---|
| | | 353 033106FBAD | IMPACT DOT PRINTER:ERP-300V | |
| 1 | | 996 139002GZ | MAIN FRAME CAULKING ASSY,ECR-210,A/S | |
| 2 | | 996 139002AG | SHAFT LEVER SUPPORT,18634-00062EA, A/S | |
| 3 | | 996 139002AL | GEAR REDUCTION_2 , 18613-01050AB,A/S | |
| 4 | | 996 139002AU | GEAR HEADIDLE_2 , 18613-01020AB,A/S | |
| 5 | | 996 139002AT | GEAR HEADIDLE_1 , 18613-01010AB,A/S | |
| 6 | | 996 139002HA | GEAR REDUCTION 3 ASSY ,ECR01-220, A/S | |
| | 6-1 | JK81-10054A | GEAR REDUCTION 3,18613-01060AB ,A/S | |
| | 6-2 | JK81-10055A | SHAFT REDUCTION 2:18634-00050EA,A/S | |
| | 43 | JK81-10056A | SP (PI2*10):A/S,52062-01000QA,A/S | |
| 7 | | 996 139002HA | ROLLING CAM ASSY,ECR01-121 ,A/S | |
| 8 | | JK81-10057A | R-DETECTOR PLATE L:18605-01010AA,A/S | |
| 9 | | JK81-10058A | R-DETECTOR PLATE R:18605-01000AA,A/S | |
| 10 | | 996 139002FJ | RIBBON DRIVING LEVER:18607-01000AA,A/S | |
| 11 | | 996 139002HE | LEAD CAM ASSY,ECR01-230,A/S | |
| | 11-1 | JK81-10059A | GEAR REDUCTION 1:18613-01040AB,A/S | |
| | 11-2 | JK81-10060A | LEAD CAM:A/S,18621-01010BD , A/S | |
| | 43 | JK81-10056A | SP (PI2*10):52062-01000QA,A/S | |
| 12 | | JK81-10061A | ADJUSTABLE BUSH:59820-12009AA,A/S | |
| 13 | | JK81-10062A | SCREW (HF3*3):50692-30030BA ,A/S | |
| 14 | | JK81-10063A | ENCODER SENSOR ASS'Y,ECR401-401, A/S | |
| 15 | | 996 139002CF | ENCODER ,18614-01000AB ,A/S | |
| 16 | | JK81-10064A | HEAD MOTOR ASS'Y:ECR01-341 ,A/S | |
| | 16-1 | JK81-10065A | MOTOR HEAD BRACKET:18612-01000AA,A/S | |
| | 16-2 | JK81-10066A | GEAR HEAD MOTOR:18613-01001AB,A/S | |
| | 16-3 | JK81-10067A | CORE:71432-05004FA,A/S | |
| | 16-4 | JK81-10068A | WIRE (L140, BLU):70692-14001DA,A/S | |
| | 16-5 | JK81-10069A | WIRE (L140, RED):70692-14004RA,A/S | |
| | 16-6 | JK81-10070A | MOTOR (M200):71615-240011BA,A/S | |
| | 50 | JK81-10071A | SCREW (PS 2.6*4):50032-26041EA,A/S | |
| 17 | | JK81-10072A | MAIN PCB ASS'Y:ECR01-321,A/S | |
| | 17-1 | JK81-10073A | MAIN PCB:18626-01003AA ,A/S | |
| | 17-2 | JK81-10074A | HEAT SINK:18632-01000AA,A/S | |
| | 17-3 | JK81-10075A | SCREW-M (PH3*4):50032-30041TA,A/S | |
| | 17-4 | JK81-10076A | TR (TIP41C):60010-00042TA ,A/S | |
| | 17-5 | JK81-10077A | TR (TIP42C):60026-00041TA ,A/S | |
| | 17-6 | JK81-10078A | JUMP WIRE:60401-00076FA,A/S | |
| | 17-7 | JK81-10079A | RESISTOR (12k):60401-12375FA ,A/S | |
| | 17-8 | JK81-10080A | RESISTOR (18k):60401-18375FA,A/S | |
| | 17-9 | JK81-10081A | RESISTOR (2k):60401- 20275FA ,A/S | |
| | 17-10 | JK81-10082A | RESISTOR (220OHM):60401-22175FA,A/S | |
| | 17-11 | JK81-10083A | RESISTOR (6.2k):60401-22175FA,A/S | |
| | 17-12 | JK81-10084A | RESISTOR-CEMENT(7 Ohm);60457-07172TA | |
| | 17-13 | JK81-10085A | RESISTOT-CEMENT(10):60457-10172TA,A/S | |
| | 17-14 | JK81-10086A | RESISTOR-SEMI (2k):60641-20200FA,A/S | |

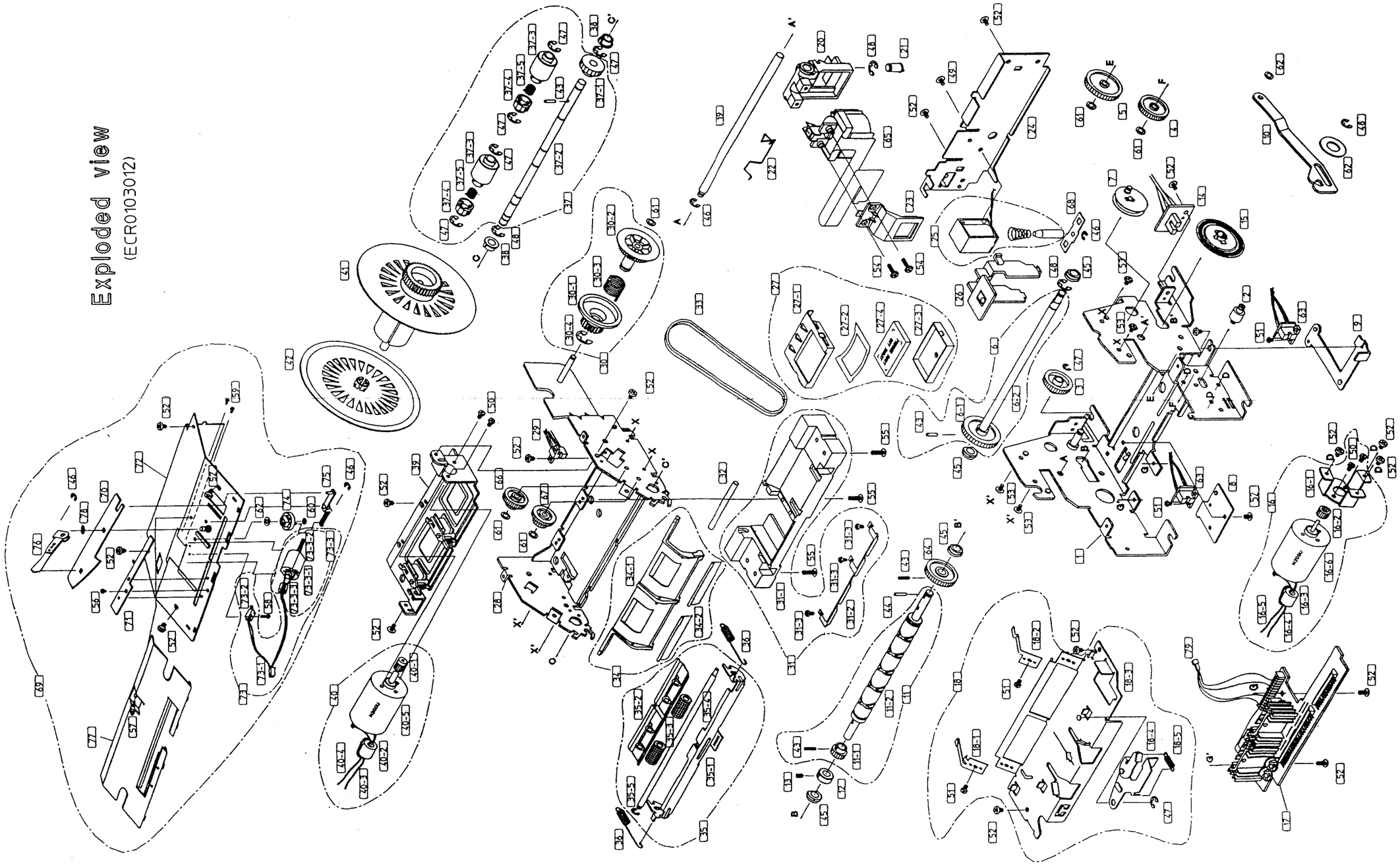
| LOC. | | CODE NUMBER | DESCRIPTION / SPECIFICATION | REARKS |
|---|---|---|---|---|
| | 17-15 | JK81-10087A | CAPACITOR-E (50v,47uF:6141-47017MA,A/S | |
| | 17-16 | JK81-10088A | IC (L200):A/S,62840-00200NA ,A/S | |
| | 17-17 | JK81-10089A | CONNECTOR (12PIN):70213-60001KA ,A/S | |
| | 17-18 | JK81-10090A | CONNECTOR (13PIN):70213-90001KA ,A/S | |
| | 17-19 | JK81-10091A | CONNECTOR (22PIN):70213-90001QA,A/S | |
| 18 | | JK81-10092A | RIBBON FRAME ASS'Y:ECR01-181 ,A/S | |
| | 18-1 | JK81-10093A | RIBBON GUIDE PLATE L:A/S | |
| | 18-2 | JK81-10094A | RIBBON GUIDE PLATE R:A/S | |
| | 18-3 | JK81-10095A | RIBBON FRAME CAUKING ASS'Y:ECR02-300 | |
| | 18-4 | JK81-10096A | RIBBON FEED LEVER ASS':ECR02-231 ,A/S | |
| | 18-5 | JK81-10097A | SPRING RIBBON FEEDING:A/S,51211-02046XA | |
| | 52 | 996 139002GD | SCREW(T/T PH 3X4);50232-30049EA,A/S | |
| | 47 | 996 139002GK | E-RING(RE4.0);51855-04006XA ,A/S | |
| 19 | | JK81-10098A | SHAFT HEAD GUIDE:A/S,18634-00030FA,A/S | |
| 20 | | 996 139002HM | HEAD CARRIAGE ASSY;ECR02-370,A/S | |
| 21 | | JK81-10099A | SHAFT TRACER:A/S,18634-00150EA;A/S | |
| 22 | | JK81-10100A | SPRING CARRIAGE LOAD:51298-01020AB,A/S | |
| 23 | | 996 139002BH | HEAD COVER:18604-01020AB,A/S | |
| 24 | | 996 139002HP | BACK COVER;18604-01000AA,A/S | |
| 25 | | 996 139002HR | SOLENOID STAMP ASSY;ECR02-450,A/S | |
| 26 | | 996 139002HS | STAMP PUSHER;18618-01000AB,A/S | |
| 27 | 27-1 | 996 139002FM | STAMP COVER;18604-01030AB,A/S | |
| | 27-2 | 996 139002FN | PLATE STAMP SPRING;18611-01000AA,A/S | |
| | 27-3 | JK81-10101A | STAMP CASE:A/S,18615-01001AB,A/S | |
| | 27-4 | 821 397001AA | STAMP,SEC,A/S | |
| 28 | | 996 139002HT | UPPER FRAME ASSY;ECR01-111,A/S | |
| 29 | | JK81-10102A | VALIDATION S/ASS'Y: ECR01-421,A/S | |
| 30 | | 996 139002HV | PAPER ROLLING ASSY;ECR01-370,A/S | |
| | 30-1 | JK81-10103A | GEAR PAPER ROLLING:A/S,18613-01110AB | |
| | 30-2 | JK81-10104A | PULLEY PAPER ROLLING:18622-01000AB ,A/S | |
| | 30-3 | JK81-10105A | SPRING PAPER ROLLING:51262-07113XA,A/S | |
| | 30-4 | JK81-10106A | E-RING (RE6.0):51855-06006XA,A/S | |
| 31 | | 996 139002HW | STAMP PAPER GUIDE ASSY;ECR02-240,A/S | |
| | 31-1 | JK81-10107A | STAMP PAPER GUIDE,18610-01020AB,A/S | |
| | 31-2 | JK81-10108A | PLATEN PAPER GUIDE:A/S,18610-01001AA | |
| | 31-3 | JK81-10109A | SCREW (T/T PH 2*4):A/S,20232-20039EB | |
| 32 | | JK81-10110A | SHAFT PAPER ROLLER:A/S,50232-20039EB | |
| 33 | | 996 139002DY | TIMING BELT;51423-07122XA ,A/S | |
| 34 | | 996 139002HY | PAPER GUIDE ASSY;ECR01-191,A/S | |
| | 34-1 | JK81-10111A | PAPER GUIDE:A/S,18610-01031AB | |
| | 34-2 | JK81-10112A | GUIDE:A/S,18610-01010AA | |
| 35 | | 996 139002HZ | RELEASE LEVER ASSY;ECR01-151,A/S | |
| | 35-1 | JK81-10113A | RELEASE LEVER:A/S,18607-01030A,A/S | |
| | 35-2 | JK81-10114A | PAPER HOLD ROLLER PLATE:18605-01060AA | |
| | 35-3 | JK81-10115A | PAPER HOLD ROLLER:18620-01000AB ,A/S | |
| | 35-4 | JK81-10116A | SHAFT HOLD ROLLER:18634-00130EA, A/S | |
| | 35-5 | JK81-10117A | E-RING (RE2.5):51855-02504XA,A/S | |
| 36 | | 996 139002ER | SPRING RELEASE;51222-06053XA,A/S | |
| 37 | | JK81-10118A | PAPER FEED SHAFT ASS'Y:ECR01-331,A/S | |

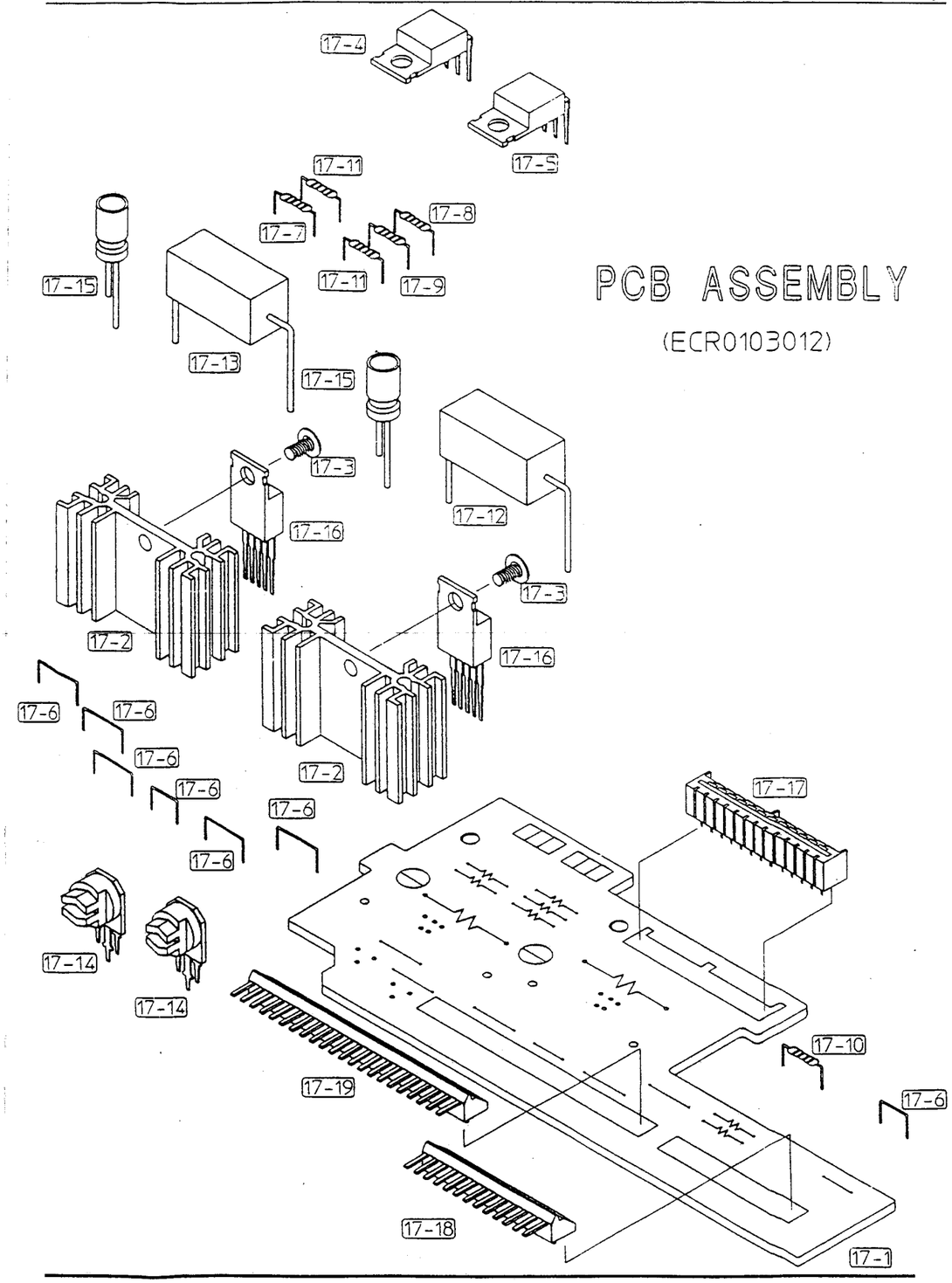
| LOC. | | CODE NUMBER | DESCRIPTION / SPECIFICATION | REARKS |
|---|---|---|---|---|
| | 37-1 | JK81-10119A | GEAR PAPER FEED:18613-01100AB,A/S | |
| | 37-2 | JK81-10120A | SHAFT PAPER FEED:18634-00120EA,A/S | |
| | 37-3 | JK81-10121A | PAPER FEED ROLLER ASS'Y:ECR02-432,A/S | |
| | 37-4 | JK81-10122A | RATCHET:18616-01000AB ,A/S | |
| | 37-5 | JK81-10123A | CLUTCH SPRING:51260-07064XA,A/S | |
| | 43 | 996 139002JG | SP (PI 2X10);52062-01000QA,A/S | |
| | 47 | 996 139002GL | E-RING;51855-04006XA , A/S | |
| 38 | | 996 139002FT | POLLY BEARING;51602-06000AA,A/S | |
| 39 | | 996 139002JB | MOTOR FEEDING BRACKET ASSY;ECR01-300 | |
| 40 | | JK81-10124A | PAPER MOTOR ASS'Y:ECR01-351,A/S | |
| | 40-1 | JK81-10125A | GEAR FEED MOTOR:A/S,18613-01071AB,A/S | |
| | 40-2 | JK81-10067A | CORE;714132-05004FA,A/S | |
| | 40-3 | JK81-10126A | WIRE (L340,BLU):70692-34003DA,A/S | |
| 41 | | | SPOOL ASSY;ECR01-181,A/S | |
| 42 | | 996 139002JF | DISK;18628-01000AB,A/S | |
| 43 | | 996 139002JG | SP(PI 2X10);52062-01000QA,A/S | |
| 44 | | 996 139002GQ | PARALELL PIN(2X10);52015-01000XA,A/S | |
| 45 | | 996 139002FR | OILLESS METAL-1;51601-06000AA,A/S | |
| 46 | | 996 139002GK | E-RING(RE3.0),51855-03006XA,A/S | |
| 47 | | 996 139002GL | E-RING(RE4.0),51855-04006XA,A/S | |
| 48 | | 996 139002GM | E-RING(RE5.0),51855-05006XA,A/S | |
| 49 | | JK81-10128A | SCREW (PH 3*3):50032-30031EA,A/S | |
| 50 | | 996 139002JH | SCREW (PH 2.6*4):50032-260041EA,A/S | |
| 51 | | 996 139002GD | SCREW (T/T PH 3X4):50232-30049EA,A/S | |
| 52 | | 996 139002JJ | SCREW (T/T PH 3X5):50232-30059EA,A/S | |
| 53 | | 996 139002JK | SCREW(CP 3X6);50032-30061EC,A/S | |
| 54 | | 996 139002JL | SCREW (T/T PH 3X10):50032-30104EA,A/S | |
| 55 | | JK81-10129A | SCREW (PH 3*18):50032-30181EA,A/S | |
| 56 | | 996 139002FW | SCREW (PH 3*4):50032-30041EA,A/S | |
| 59 | | JK81-10109A | SCREW(T/T PH 2X4); 50252-20049EA,A/S | |
| 62 | | 996 139002GH | PW(5X10X1.0);51002-05010EB,A/S | |
| 63 | | JK81-10130A | PHOTO SENSOR,SG-23FH:64850-05003MA,A/S | |
| 65 | | S09-15E | PRINTER HEAD;69828-16001AA,A/S | |
| 66 | | 996 139002AT | GEAR FEED IDLE_1;18613-01080AB,A/S | |
| 67 | | 996 139002AU | GEAR FEED IDLE_2;18613-01090AB,A/S | |
| 68 | | 996 139002EE | STAMP SPRING;18611-01010AA,A/S | |

AUTO CUTTER PART

| LOC. | | CODE NUMBER | DESCRIPTION / SEPECIFICATION | REARKS |
|---|---|---|---|---|
| 69 | | JK81-10227A | AUTO COVER 1 ASSY;ECR01-480,A/S | |
| 70 | | JK81-10228A | UPPER CUTTER;18608-01050AA,A/S | |
| 71 | | JK81-10229A | LOWER CUTTER;18608-01060AA,A/S | |
| 72 | | JK81-10230A | AUTO COVER 1 CAULKING ASSY;ECR02-470 | |
| 73 | | JK81-10231A | MOTOR SWITCH ASSY;ECR02-481,A/S | |
| | 73-1 | JK81-10232A | CONNECTOR (IN) ASSY;70211-80000CA,A/S | |
| | 73-2 | JK81-10233A | SWITCH;70022-02010AA,A/S | |
| | 73-3 | JK81-10234A | AUTO CUTTER MOTOR ASSY;ECR02-490,A/S | |
| | 73-3-1 | JK81-10235A | MOTOR(FK-130SH);71615-24002BA,A/S | |
| | 73-3-2 | JK81-10236A | WORM;18613-01120AB,A/S | |
| | 73-3-3 | JK81-10237A | FERRITE-CORE;71432-05004FA,A/S | |
| 74 | | JK81-10238A | WORM WHEEL ASSY;ECR02-510,A/S | |
| 75 | | JK81-10239A | LEVER ASSY;CR02-510,A/S | |
| 76 | | JK81-10240A | SPRING SUPPORTER ASSY;ECR02-520,A/S | |
| 77 | | JK81-10241A | AUTO CUTTER COVER ASSY;ECR02-530,A/S | |
| 78 | | JK81-10242A | WAVE WASHER;51032-04102QA,A/S | |
| 79 | | JK81-10243A | CONNECTOR (OUT) ASSY;70211-60000CA | |

## Exploded View



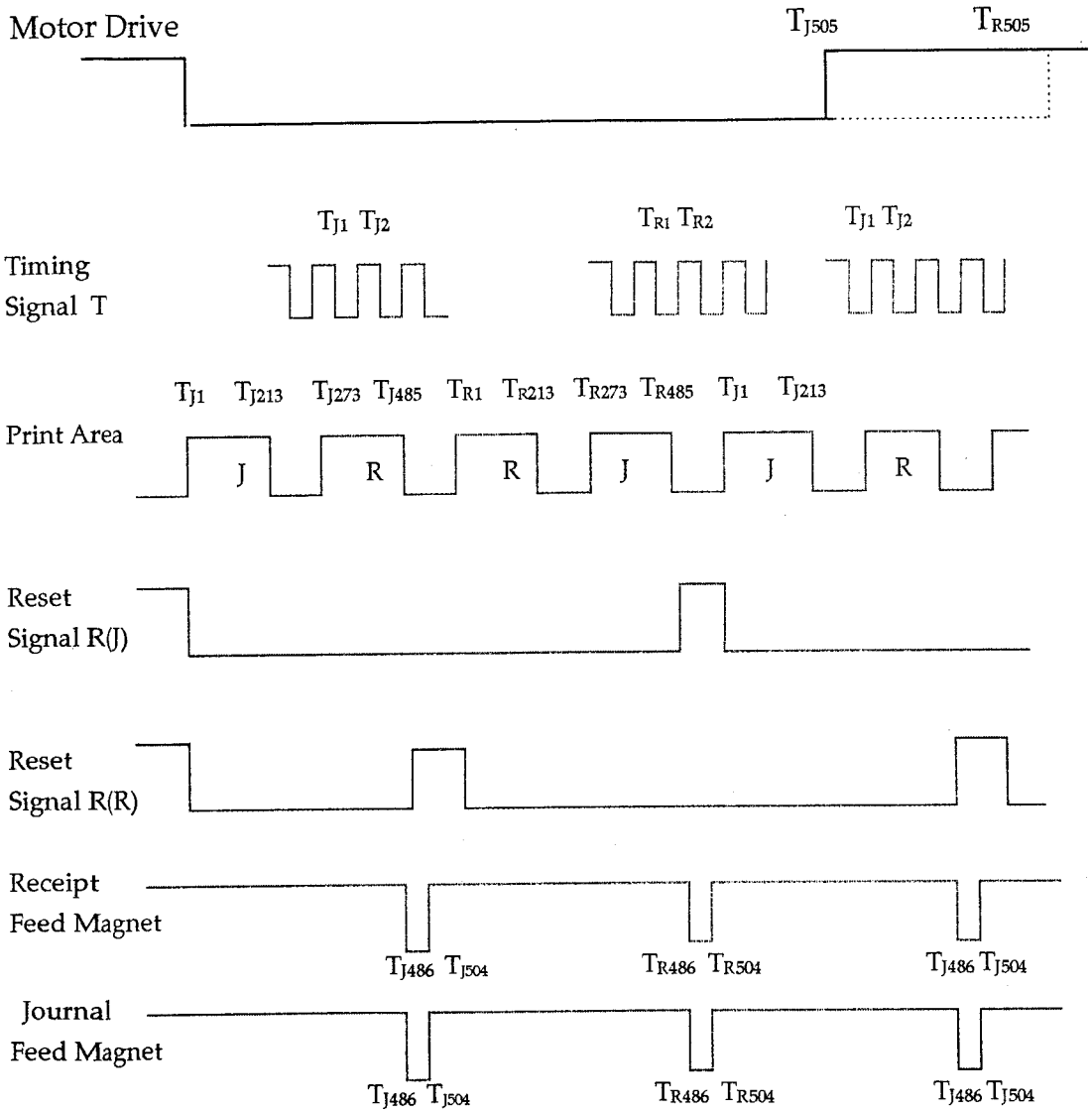



# PCB ASSEMBLY

(ECR0103012)

# Timing Chart

## printing and paper feed

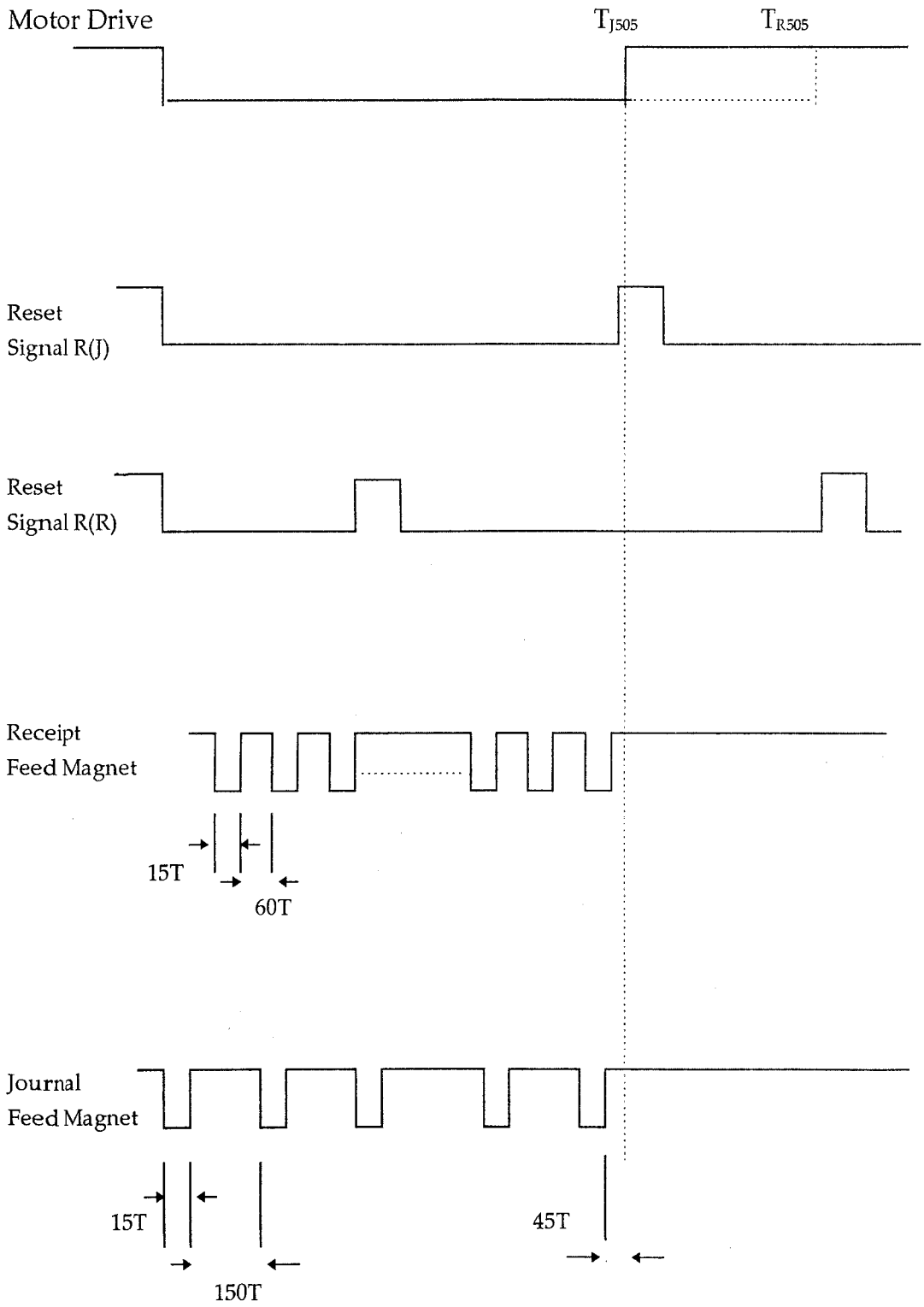



1. Motor is turned off at $T_{J505}$ or $T_{R505}$ .

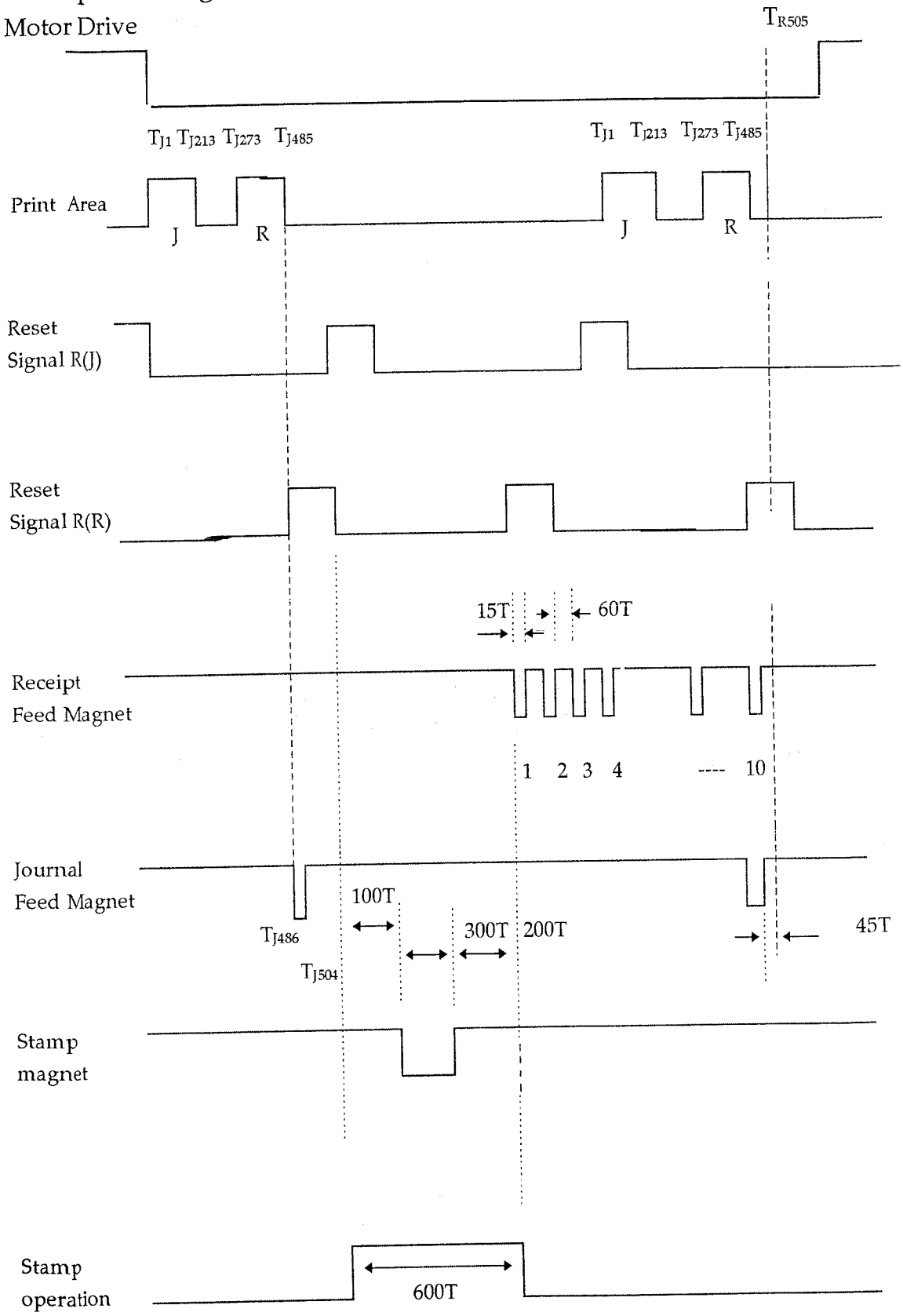
2. On validation print,printing action is turned on at $T_{J1}$ -$_{J485}$ and $T_{R1\text{-}R485}$

   Motor is turned off at $T_{R505}$ or $T_{J505}$ .

# Fast feeding



## Receipt issuing

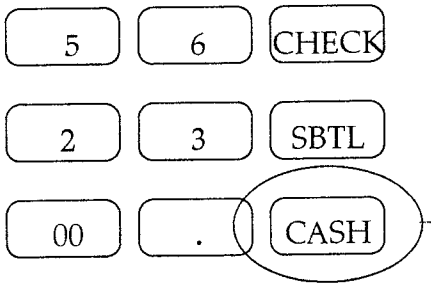


## Memo

# 10 Procedure

## 10-1 Initial Clear Procedure

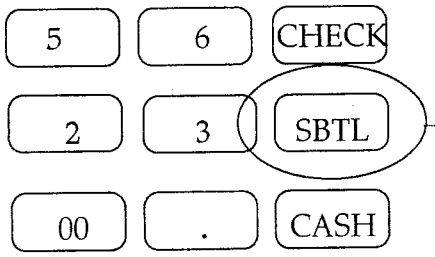
1. Turn key to P-Mode.
2. Unplug Register.
3. Hold down the lower right key on keyboard and plug in the Register, again.
4. The Register issues an Initial Clear receipt.




USE THIS KEY FOR INSTALL CLEAR PROCEDURE REGARDLESS OF WHAT KEY FUNCTION ID PROGRAMMED AT THAT LOCATION

## 10-2 Install Default Keyboard

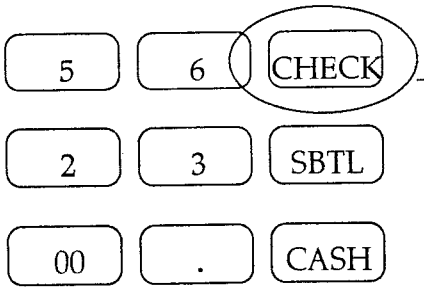
1. Turn key to S-Mode.
2. Unplug Register.
3. Hold down the second key up from lower right key on keyboard and plug in the Register, again.
4. The Register issues an Install Default Keyboard receipt.




USE THIS KEY FOR INSTALL DEFAULT KEYBOARD PROCEDURE REGARDLESS OF WHAT KEY FUNCTION IS PROGRAMMED AT THAT LOCATION

## 10-3 All Clear

1. Turn key to S-Mode.
2. Unplug Register.
3. Hold down the third right key up from the lower right key on the Key board,plug in the register , again .
4. The Register issues an All Clear receipt.




USE THIS KEY FOR ALL CLEAR PROCEDURE REGARDLESS OF WHAT KEY FUNCTION ID PROGRAMMED AT THAT LOCATION

## 10-4 S-Position Register Number Programming

REGISTER NUMBER
1 - 16

EXIT

## 10-5 Loop Back Connections

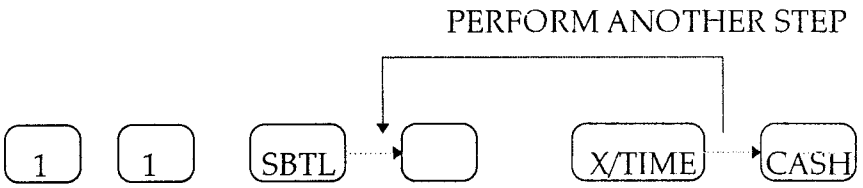
The jig for the communication test

① serial 1, serial 2( Main PCB, D-sub 9)
TxD(3) ---- RxD(2)
DTR(4) ---- DSR(6)
CTS(8) ---- RTS(7)

② serial 3, serial 4(Option PCB, Modular)
TxD(3) ---- RxD(4)
DTR(8) ---- DSR(2)
CTS(6) ---- RTS(5)

③ IRC
Test jig is not necessary

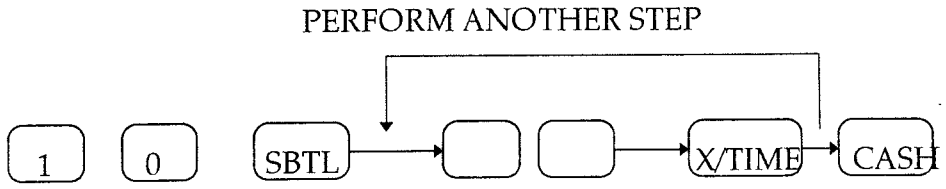
## 10-6 S-Position Communication Test




1 - 5

| CODE | FUNCTION |
|---|---|
| 1 | TEST SERIAL PORT #1 * |
| 2 | TEST SERIAL PORT #2 * |
| 3 | TEST SERIAL PORT #3 * |
| 4 | TEST SERIAL PORT #4 * |
| 5 | IRC TEST(Internal) |
| 6 | IRC SYSTEM WIDE TEST. |

## 10-7 S-Position Service Programming




SERVICE CODE

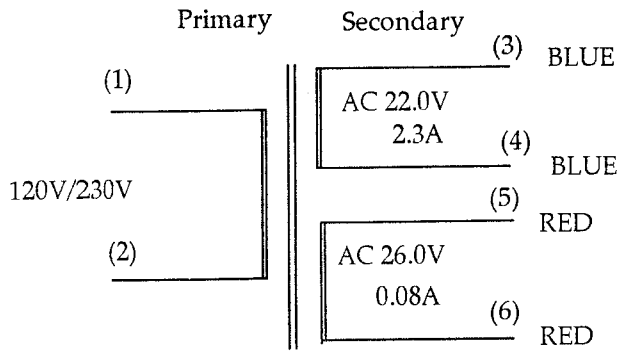
| CODE | FUNCTION |
|---|---|
| 1 | ALL REPORT RAM CLEAR |
| 2 | CLEAR TOTALS AND COUNTERS |
| 3 | CLEAR GRAND TOTALS ONLY |
| 4 | PRINTER TEST |
| 5 | PRINTER DOT ALIGNMENT TEST |
| 6 | DISPLAY TEST |
| 7 | RAM TEST |
| 8 | EPROM CHECKSUM PRINT OUT |
| 9 | S-MODE PROGRAMMING PRINT OUT |
| 10 | CLEAR PLU FILE |
| 11 | CHECK UNLOCK |
| 12 | POLE DISPLAY TEST |

## Memo

# 11 Operation and Description for each part of the Circuit

## 11-1 Power Transformer / Fuse

1. POWER TRANSFORMER




2. FUSE

| | Spec. | Remark |
|---|---|---|
| F1 | 125V/250V 4A | POWER |
| FS2 | 125V/250V 500mA | IRC |
| FS3 | 125V/250V 500mA | IRC |

## 11-2 Power Circuit

This system is operated under 120VAC or 230VAC, all data is saved by the Battery when the Main power is turned off. The power circuit supplies the five different DC voltage sources.

### 11-2-1 Display / customer Display Driving voltage : +33Vdc

This system uses +33VDC made by the Bridge diode(BD2) and the smoothing capacitor(C61). And it is used as Grid supply voltage and Flat of display tube.

### 11-2-2 Printer / Cash Drawer Solenoid driving Voltage : +25Vdc

+30VDC is produced from the secondary AC Output Voltage of the Power Transformer by the Bridge Diode (BD1) and the capacitor(C53).

This voltage is used to drive Printer Head solenoid.

The Zener Diode (D41,27V) sets a Reference Voltage, and +25VDC voltage is obtained by the Power Tr.(TIP142,Q17). This voltage drives the Printer and the Cash Drawer Solenoid.

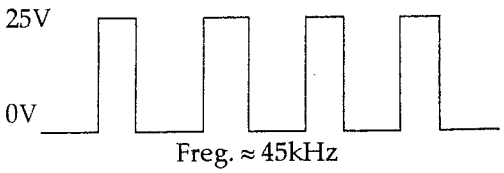



Figure 11-3 ( Q15 Collector Terminal

### 11-2-3 Logic IC Driving Voltage: +5V

+5VDC Logic Driving Voltage is produced by the Step-Down method used U47(34063). That is, U47 produces 45kHz rectangular wave at the Collector of Q15 by switching Q15(A1010) using input voltage ( +25V DC) . This makes D42(IN5822,Free flowing) and L14 store Energy and the Voltage is smoothed by C57(470uF) and then +5V Logic Voltage is produced .

### 11-2-4 Battery Voltage : +3.6Vdc

VCC is supplied to SRAM and the Clock IC (U27,RP5c15) through the D4 under the "POWER-ON" state. 3.6V is supplied to RAM and Clock Chip when the power is off.

### 11-2-5 Fiscal EPROM writing voltage (+12V)

+12V DC is produced from volatge regulator (U48 ,LM7812) which input voltage is 25V DC .

This voltage is used to write data to fiscal EPROM.

## 11-3 RESET and Power Fail circuit

### 11-3-1 Reset Circuit

Reset signal is a signal in order to start-up CPU under Power-on, and Reset circuit uses an Reset IC M51953(U10). When +5V is fallen under 4.3V by Power-off, RESET signal prohibits the system from misoperating by lowering down to 0V.

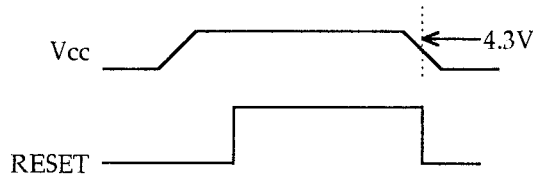



Figure 11-4 RESET\ waveform

status into RAM before 40ms after +5V drops. When power is turned on, the CPU does the operations which were working before power-off. This system is esigned to sense the time when the printer driving voltage +25V goes down to +15V.

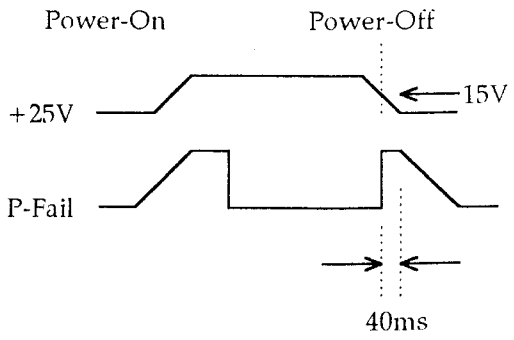



Figure 11-5. Power Fail Waveform

### 11-3-2 Power Fail Sensing Circuit

Power Fail Sensing Circuit senses sudden power-off to backup the needed data and current CPU

## 11-4 Battery, RTC(Clock), Buzzer, Turret Driving Circuit

### 11-4-1 Battery Circuit

BATTERY Circuit supplies SRAM and RTC (U27, RP5C15) with voltage source and is used to drive Clock and to save DATA when the main Power is turned off. When the Power is turned on, VCC source(+5V) is supplied to SRAM, RTC, through the D4 and the Battery is charged, when the Power is turned off, D4 is shut and the source charged in the Battery is supplied to SRAM and RTC.

### 11-4-2 RTC(Clock) Circuit

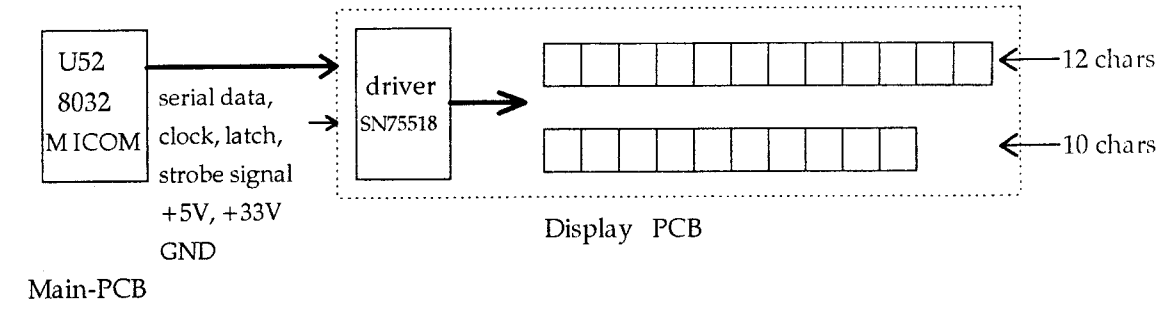
This uses an Clock IC RP5C15, is driven by the Battery when the main Power is turned off, and the frequency 32.768kHz made by X2, C30, C31 inputs to this circuit.

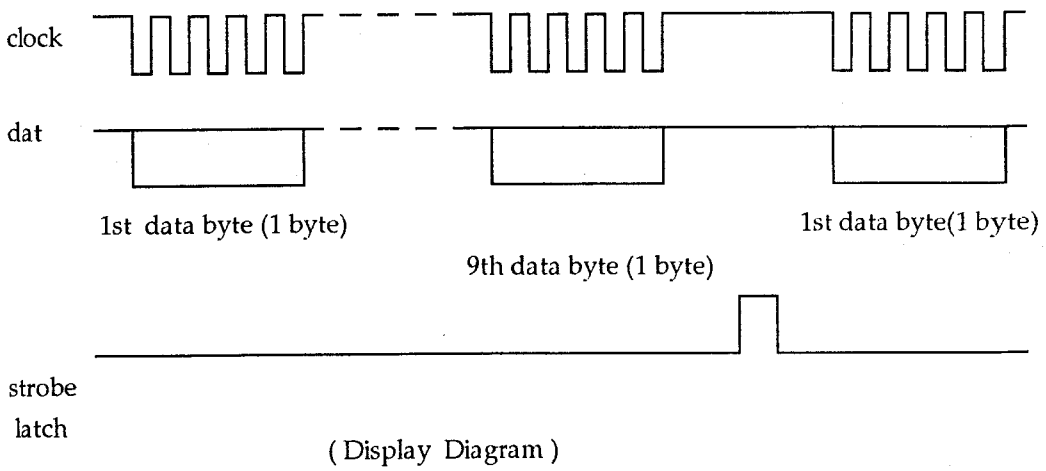
## 11-4-3 Buzzer Driving Circuit

The Buzzer is used to inform several kinds of states which occur under system operating and gives some information to users by oscillating the pin 14 of MICOM (U30,8032) about appropriate time is 0.5kHz.

## 11-4-4 Font / Rear Display Driving Circuit

This uses 12chars / 10digit fluorescent Display and uses SN75518 (is located on the Display PCB) for the driver. MICOM(8032) sends Display data to the driver repeatedly having given time interval in series and then fluorescent Display is operated.



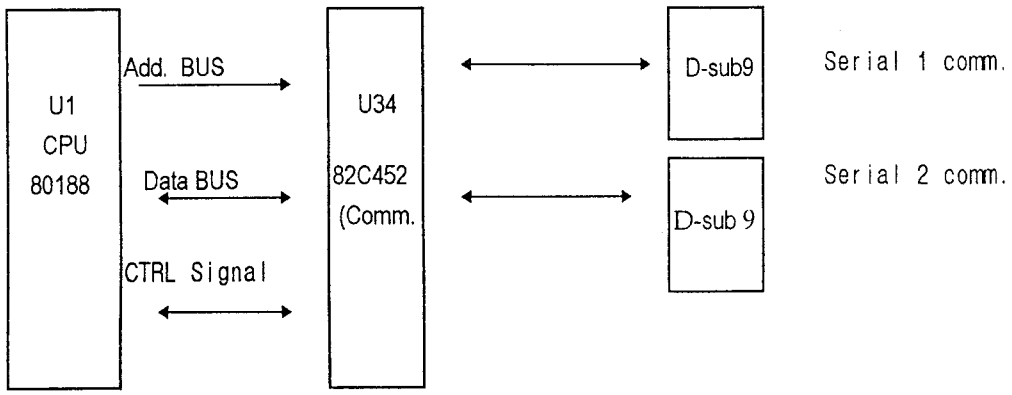




( Display Diagram )

# 11-5 RS-232C Circuit related to Peripheral Equipments(OBR, SLIPPRINTER, etc.)

## 11-5-1 Communication Circuit for serial 1, serial 2

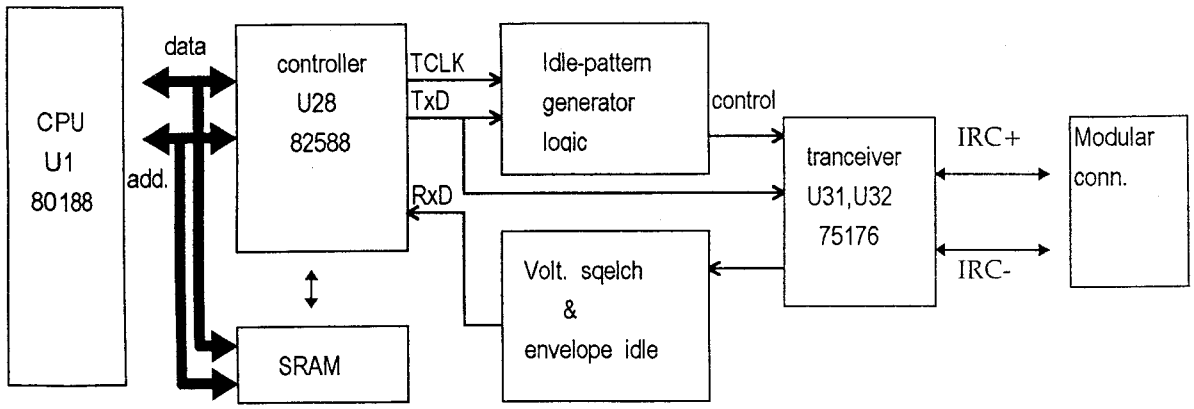
The KS82C452 (u34), RS-232C CONTROLLER, is used to communicate serial 1, serial 2. And also used Max232(U24-U26) for driver. Show following Block diagram




(RS-232C Block diagram)

# 11-6 IRC Communication Circuit

This uses an IRC communication controller (U28, 82588) and a transceiver ( U31, U32, 75176), is bi-directional communication, and has the CSMA/CD protocol method. This uses a 2-wire shielded and twisted cable, the Transmission / Receive Data is processed by the DMA control method among CPU- SRAM- 82588.



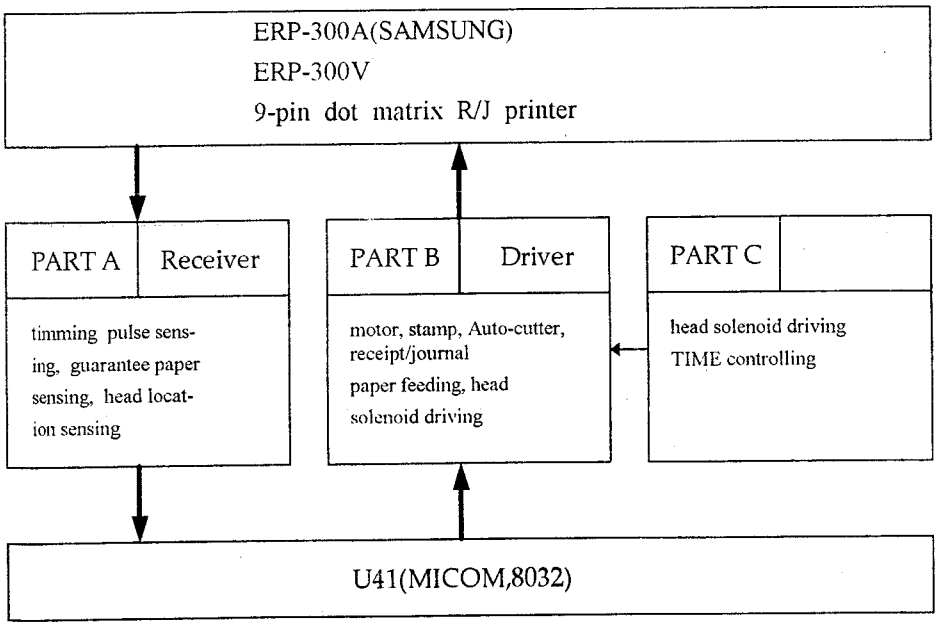

IRC Block Diagram

## 11-7 Pinter Driving Circuit

This printer prints several kinds of information having a maximum of 24 characters on the Receipt/Journal paper using the ERP-300(SAM SUNG) Dot-matrix printer. Taking the data to print from CPU(U1,80188), the MICOM analyzes the data and forms the fonts to print and drives the Printer motor's of "PART B" and then prints the data. The print information is taken from several signal information given at "PART A" by the Motor's driving signal. Also the Head solenoid's driving voltage and time have the relationship to each other, so these are controlled at "PART C" to have the given printing resolution and not to affect the driving voltage.

| |
|---|
| Head driving voltage is High → Head driving time becomes short |
| Head driving voltage is Low → Head driving time becomes long |

1. Printer Driver Block Diagram




## 11-8 Drawer, Compulsory, Paper End Sensor Driving Circuit

### 11-8-1 Drawer, Compulsory Circuit

This is used to sense when the drawer is open or closed, the compulsory switch senses if the drawer is open or closed and the MICOM responds to this.

### 11-8-2 Paper End Sensor(Receipt / Journal Paper sensor)

This is the Device to sense the amount remaining of the Receipt / Journal paper , the photo sensor inside ERP-300V sense the end of the Receipt / Journal paper. Therefore the MICOM analyzes this information and displays paper end message and the Buzzer is activated.

## 11-9 Key Board Circuit

The key Circuit consist of the scan signal of 20 lines and the Return signal of 8-line, the scan signals S0-S11 are limited to the 90 Key Board (SER-6540) and the S0-S19 are to 160 Key Board (SER-6500). The U41 (MICOM) sends repeatedly and continuously the scan data S0-S19 through the 74HCT138(U7-U9). The key Information input in the return signal if the specific key is pressed during the given time. The MICOM reads the data through U46(74HCT541) and analyzes what key is pressed and transmits this information to the CPU (U1), then performs the selected function. The U41(MICOM) sends the mode scan signal to the Key-lock switch and taken the return data through the U46 (74HCT541) And transmits this to the U1(80188) and performs the selected function.

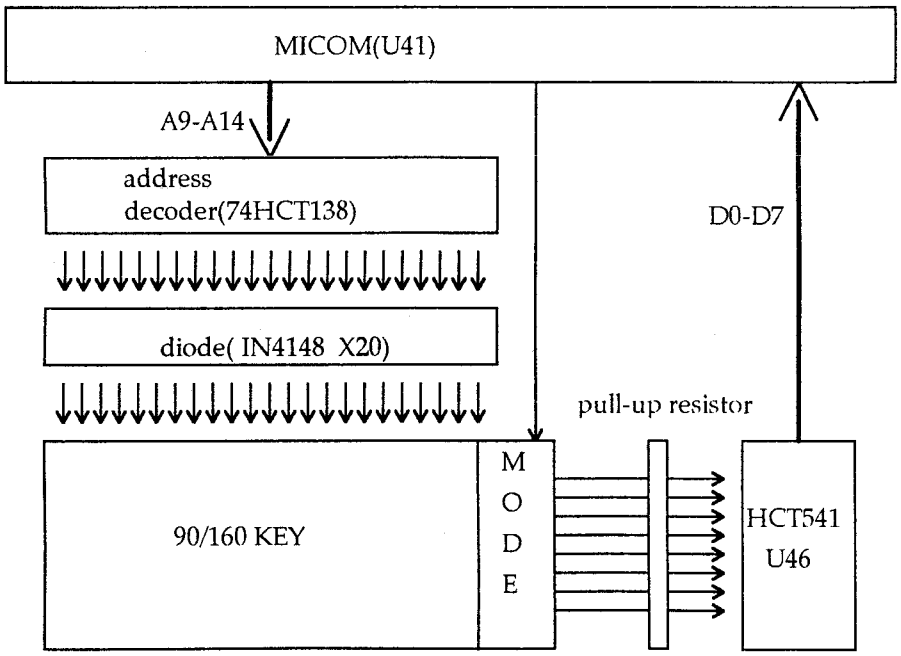
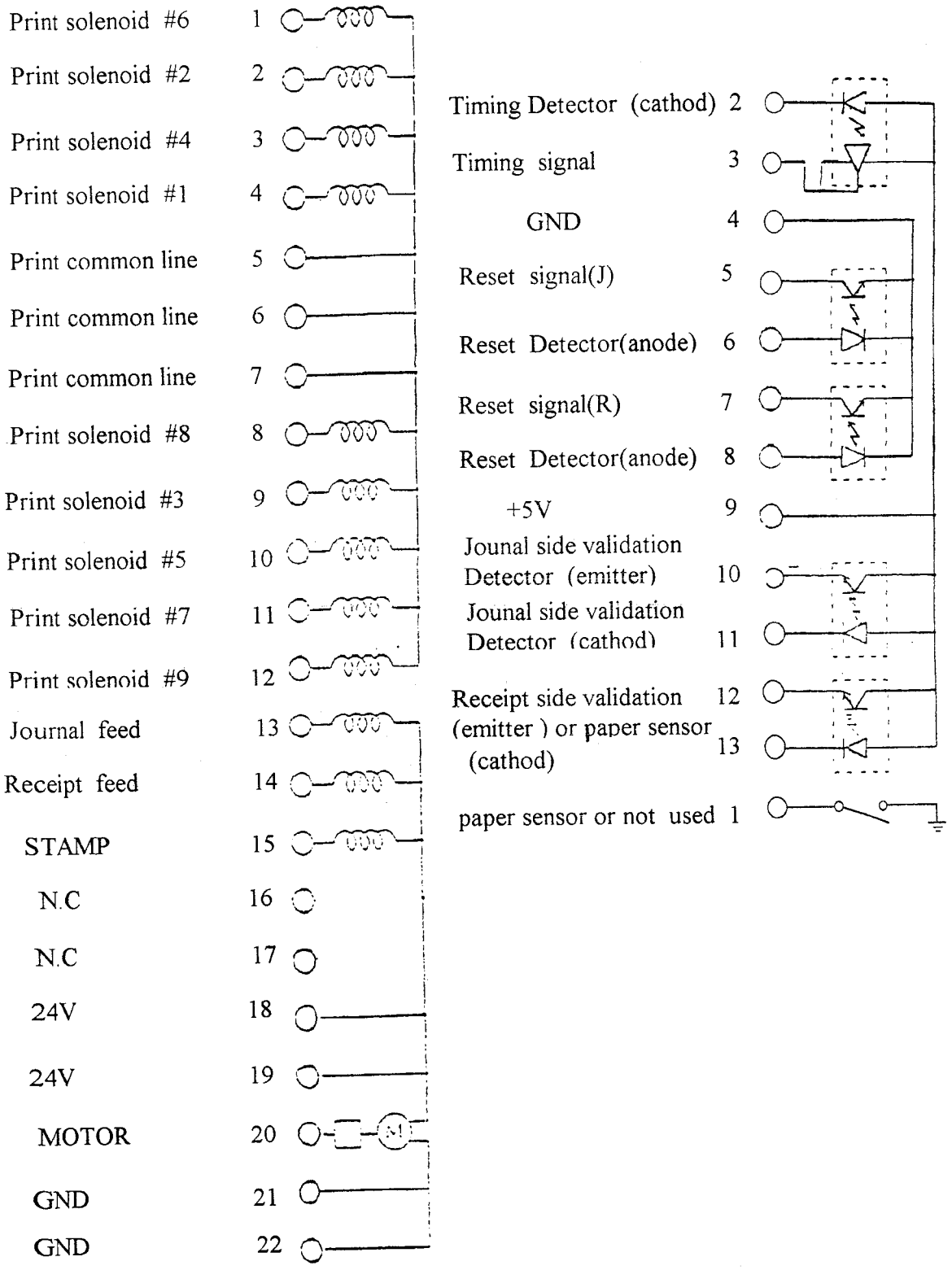


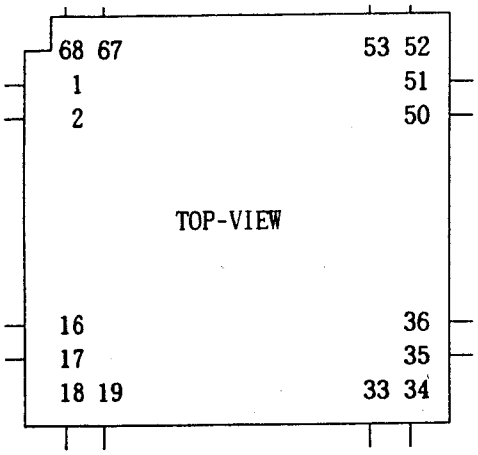

Figure 11-14 Key Drive Block Diagram

## 11-10 Pinter Terminal Arrangement (ERP-300V)

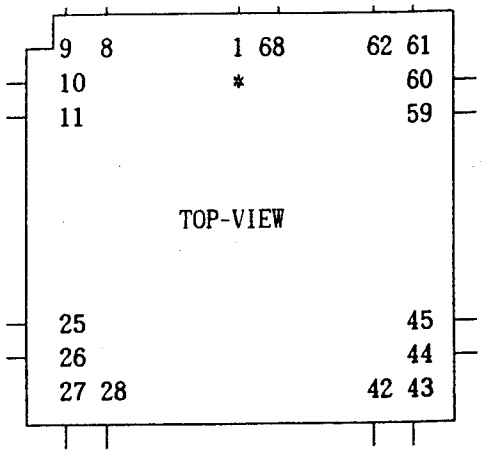


## 11-11 IC Specifications / Descriptions

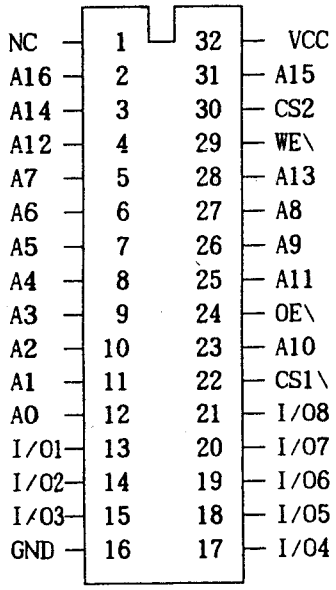
80188



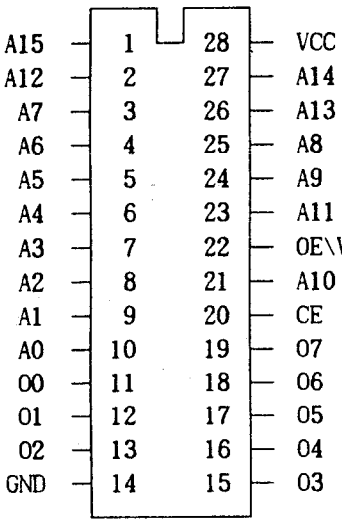

82C452



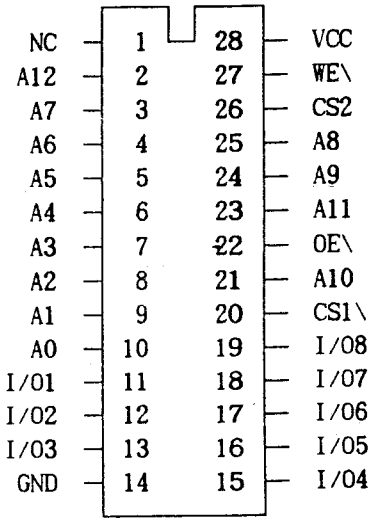

681000



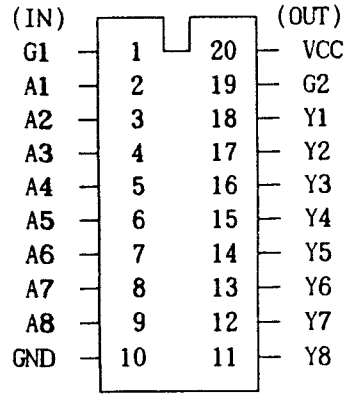

27C512




6264

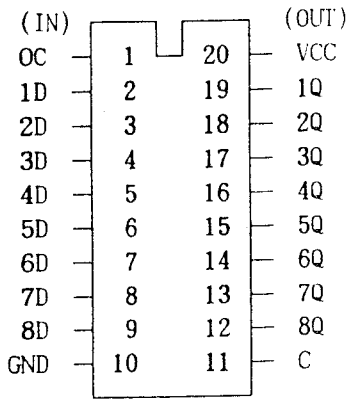



74HCT541



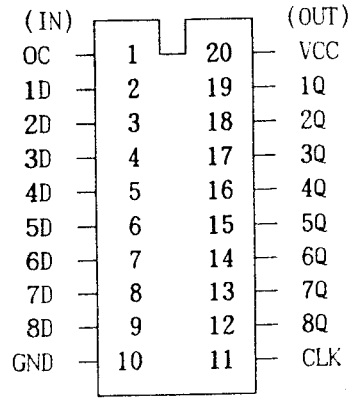

| INPUT G1\ | INPUT G2\ | INPUT A | OUTPUT Y |
|---|---|---|---|
| L | L | L | L |
| L | L | H | H |
| H | X | X | Z |
| X | H | X | Z |

74HCT573



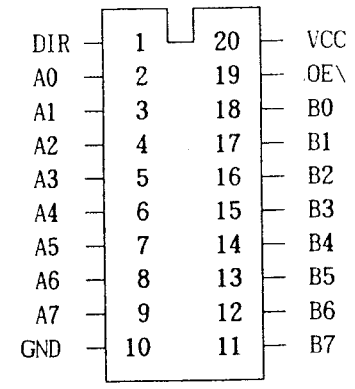

| INPUT OC\ | INPUT C | INPUT D | OUTPUT |
|---|---|---|---|
| L | H | H | H |
| L | H | L | L |
| L | L | X | Q0 |
| H | X | X | Z |

74HCT574



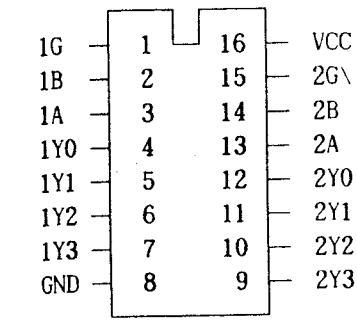

| INPUT OC\ | INPUT CLK | INPUT D | OUTPUT Q |
|---|---|---|---|
| L | ↑ | H | H |
| L | ↑ | L | L |
| L | L | X | Q0 |
| H | X | X | Z |

74HCT245



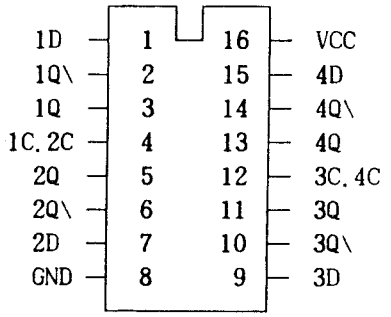

| INPUT OE\ | INPUT DIR | OPREATION |
|---|---|---|
| L | L | B to A |
| L | H | A to B |
| H | X | ISOLATION |

74HCT139



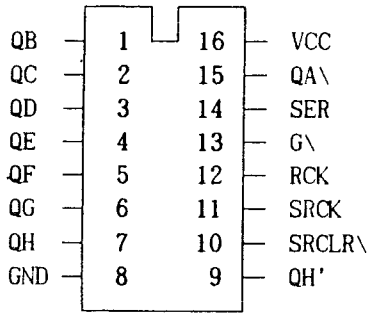

| INPUT G | INPUT B | INPUT A | OUTPUT Y0 | OUTPUT Y1 | OUTPUT Y2 | OUTPUT Y3 |
|---|---|---|---|---|---|---|
| H | X | X | H | H | H | H |
| L | L | L | L | H | H | H |
| L | L | H | H | L | H | H |
| L | H | L | H | H | L | H |
| L | H | H | H | H | H | L |

74HCT375

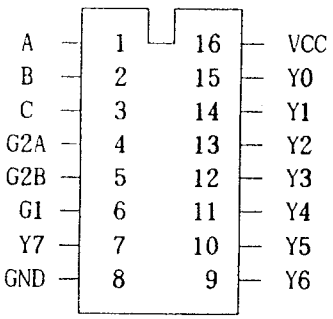



| INPUT | | OUTPUT | |
|---|---|---|---|
| D | C | Q | Q\ |
| L | H | L | H |
| H | H | H | L |
| X | L | Q0 | Q0\ |

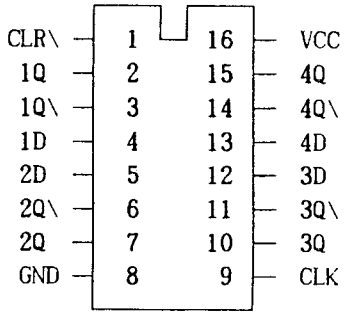
74HCT595




74HCT138

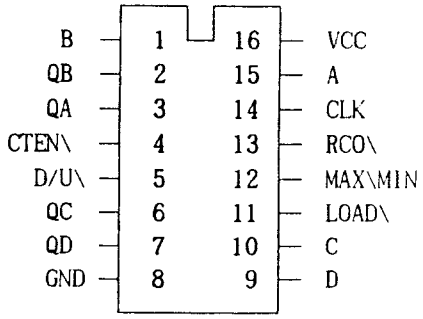



74HCT175

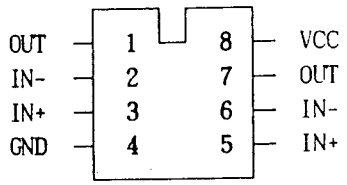



| INPUT | | | OUTPUT | |
|---|---|---|---|---|
| CLR\ | CLK | D | Q | Q\ |
| L | X | X | L | H |
| H | ↑ | H | H | L |
| H | ↓ | L | L | H |
| H | L | X | Q0 | Q0\ |

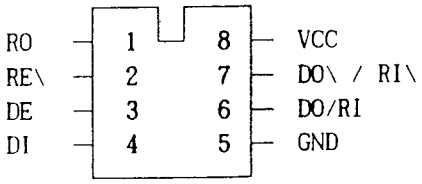
74HCT191



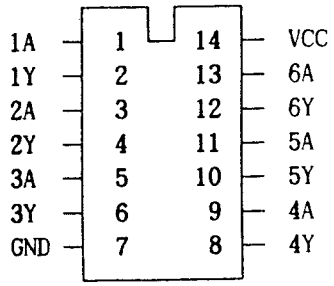
LM393




75176

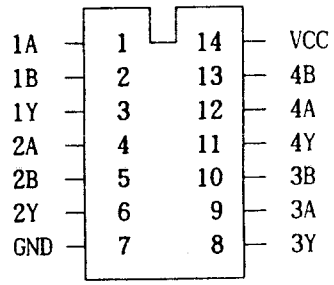



74LS05, 74HCT14, 74HCT04



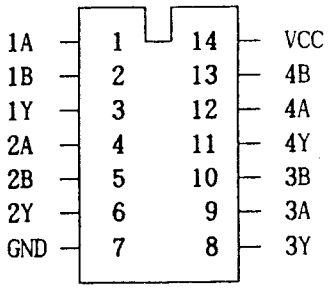

| INPUT A | OUTPUT Y |
|---|---|
| H | L |
| L | H |

74HCT08

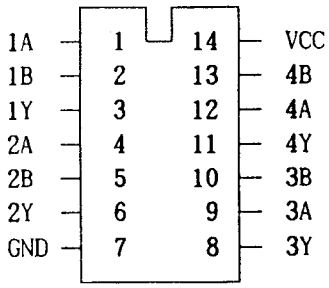



| INPUT A | INPUT B | OUTPUT Y |
|---|---|---|
| H | H | H |
| L | X | L |
| X | L | L |

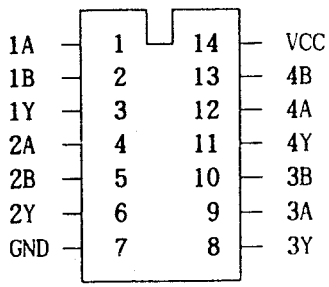
1488




1489

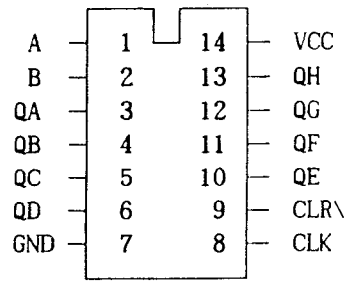



74HCT32



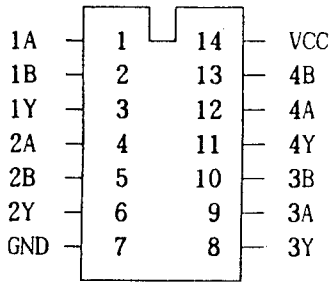

| INPUT A | INPUT B | OUTPUT Y |
|---|---|---|
| H | X | H |
| X | H | H |
| L | L | L |

74HCT164



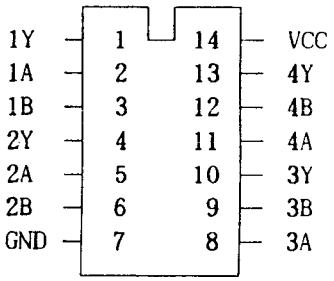

| INPUT | | | | OUTPUT | | |
|---|---|---|---|---|---|---|
| CLEAR\ | CLOCK | A | B | QA | QB.. | QH |
| L | X | X | X | L | L | L |
| H | L | X | X | Qa0 | Qb0 | Qh0 |
| H | ↑ | H | H | H | Qan | Qgn |
| H | ↑ | L | X | L | Qan | Qgn |
| H | ↑ | X | L | L | Qan | Qgn |

74HCT00



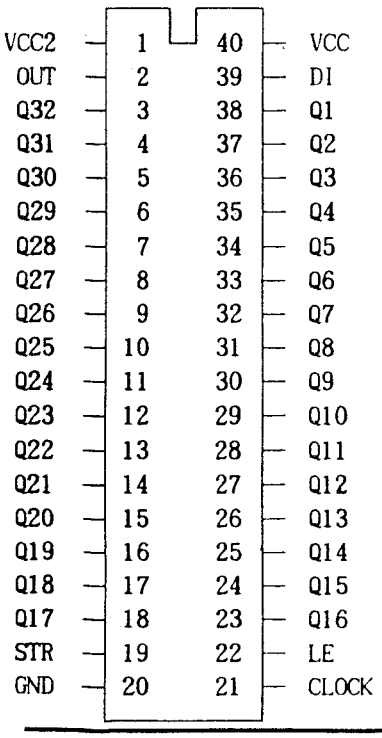

| INPUT | | OUTPUT |
|---|---|---|
| A | B | Y |
| H | H | L |
| L | X | H |
| X | L | H |

74HCT02

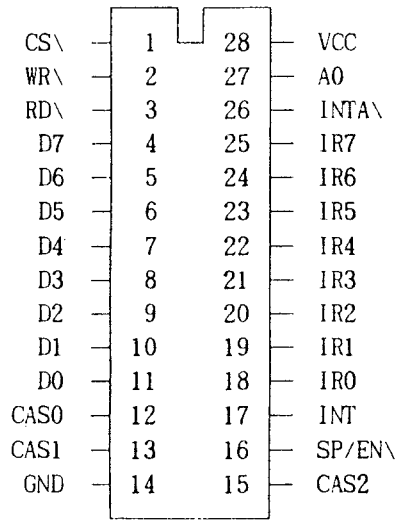



| INPUT | | OUTPUT |
|---|---|---|
| A | B | Y |
| H | X | L |
| X | H | L |
| L | L | H |

SN75518

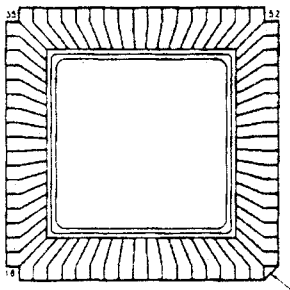



82C59

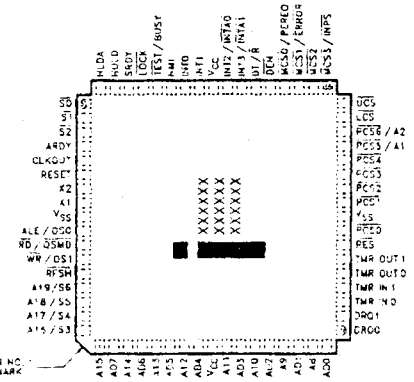


## 80188

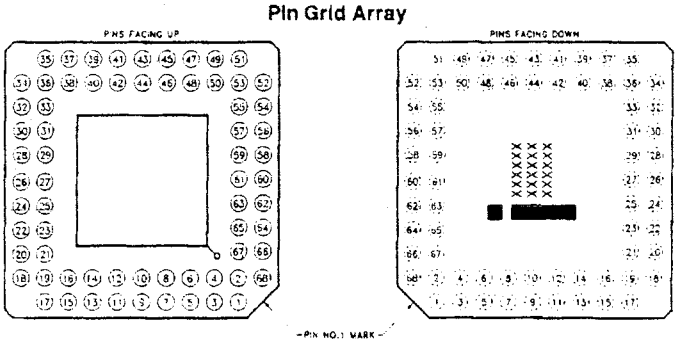
**Contacts Facing Up**



**Contacts Facing Down**

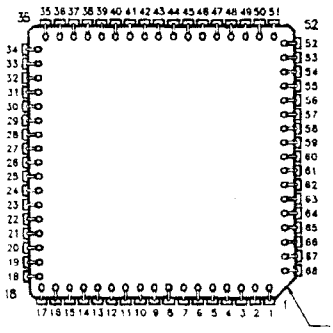


**Pin Grid Array**

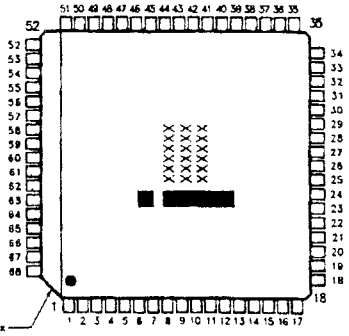


**Plastic Leaded Chip Carrier**

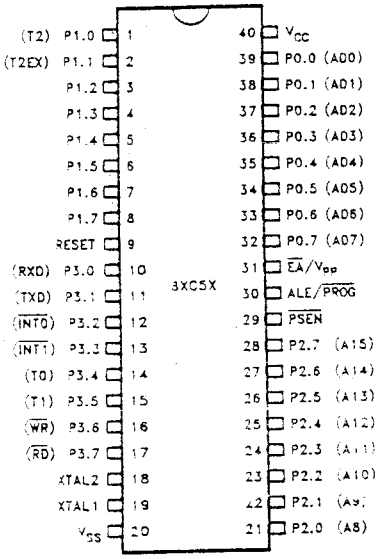
**Contacts Facing Up**



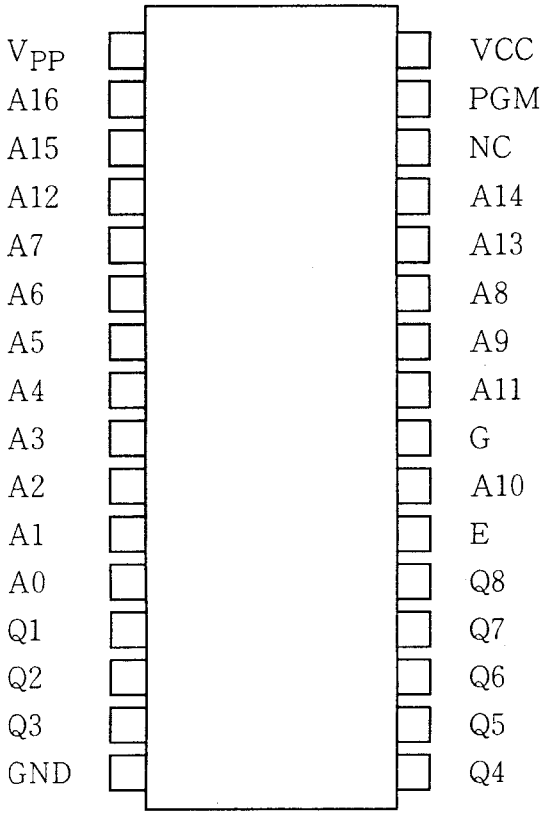
**Contacts Facing Down**



## 8052/80C52



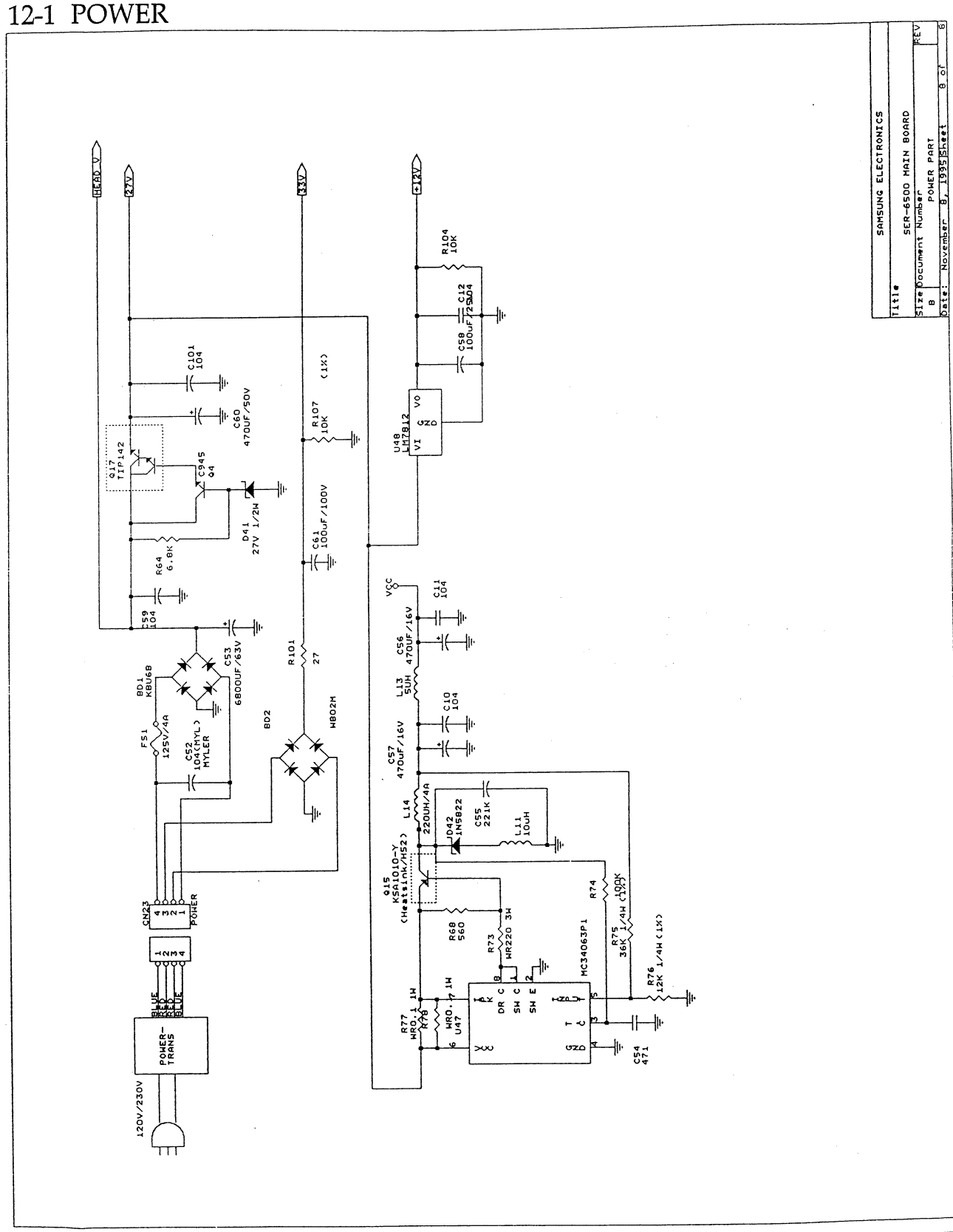
## 27C010



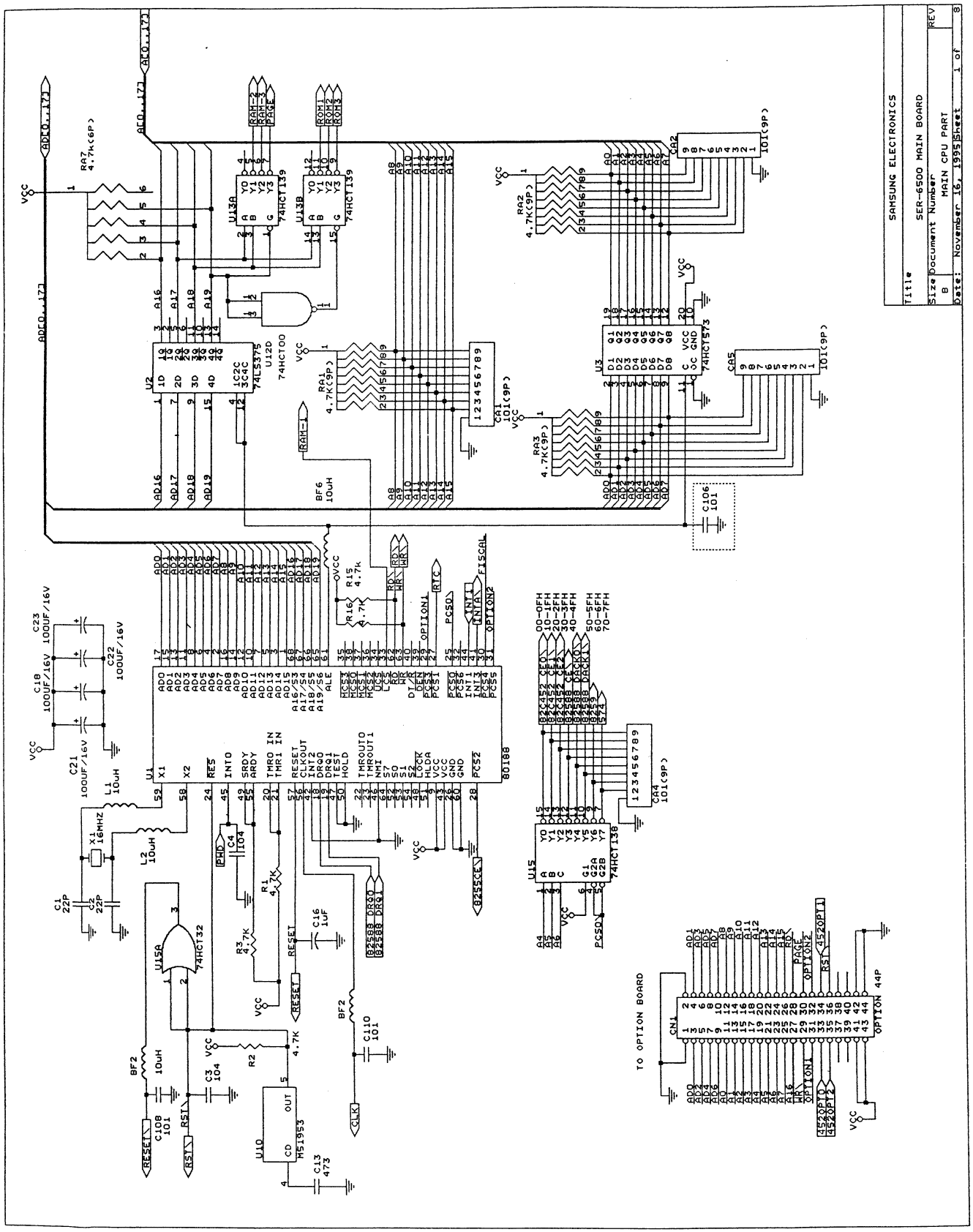

| PIN NOMENCLATURE | |
|---|---|
| A0-A16 | ADDRESS INPUTS |
| $\overline{G}$ | Output Enable |
| $\overline{E}$ | Chip enable power Down |
| GND | Ground |
| NC | No connection |
| $\overline{PGM}$ | program |
| Q1-Q8 | Outputs |
| $V_{CC}$ | 5.0V Supply |
| $V_{PP}$ | 12.5V Power Supply |

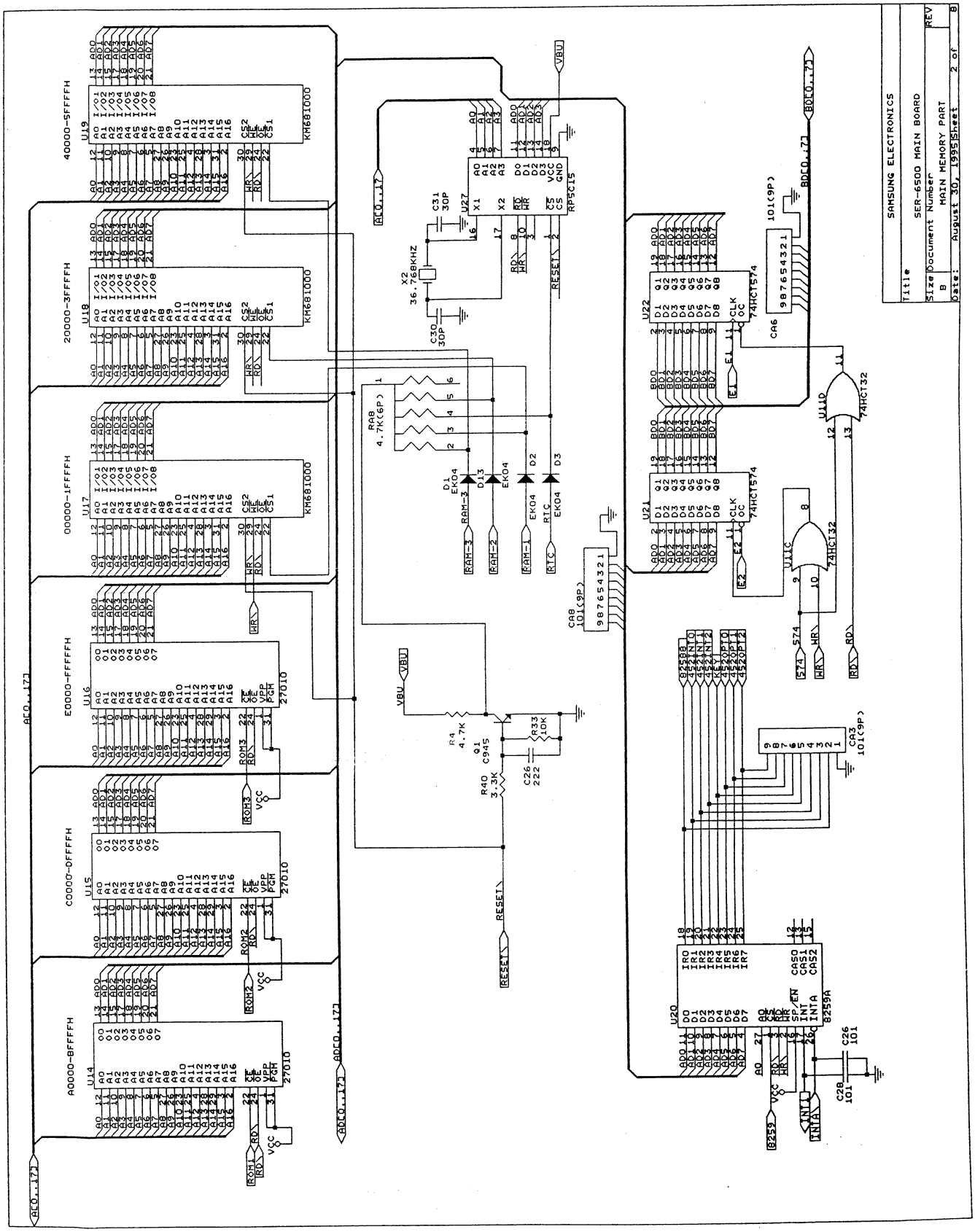
# 12 Schamatic Diagrams

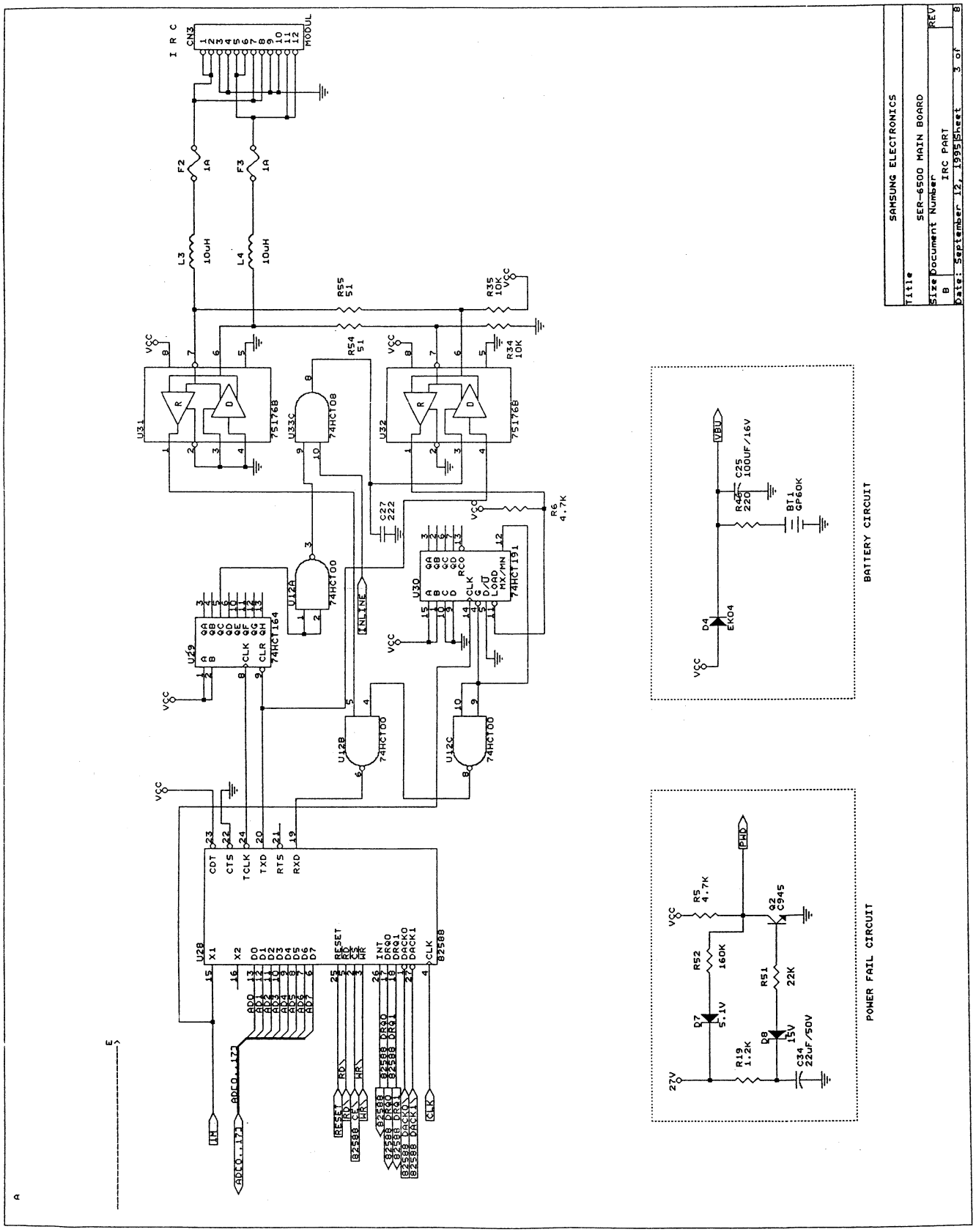
## 12-1 POWER

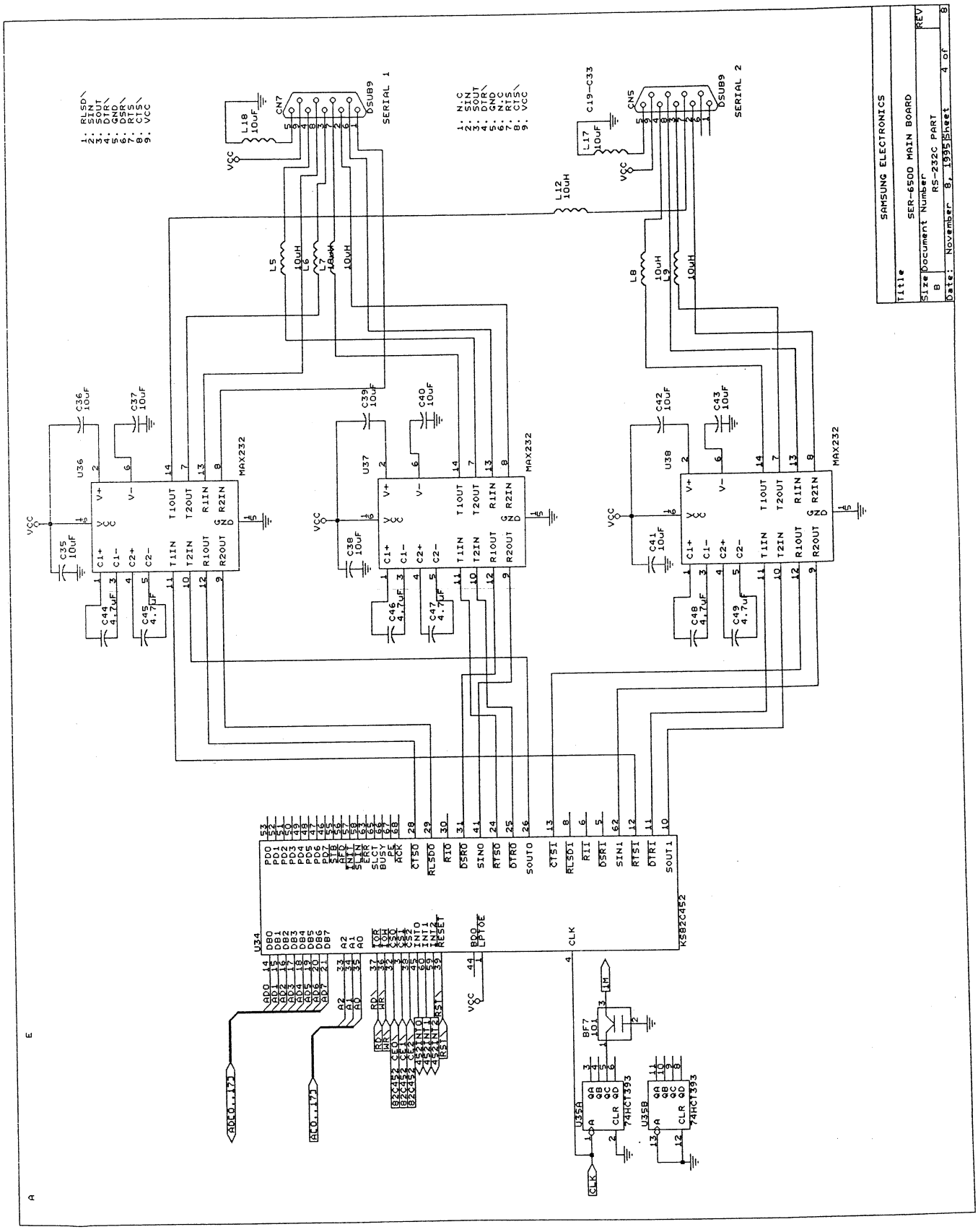


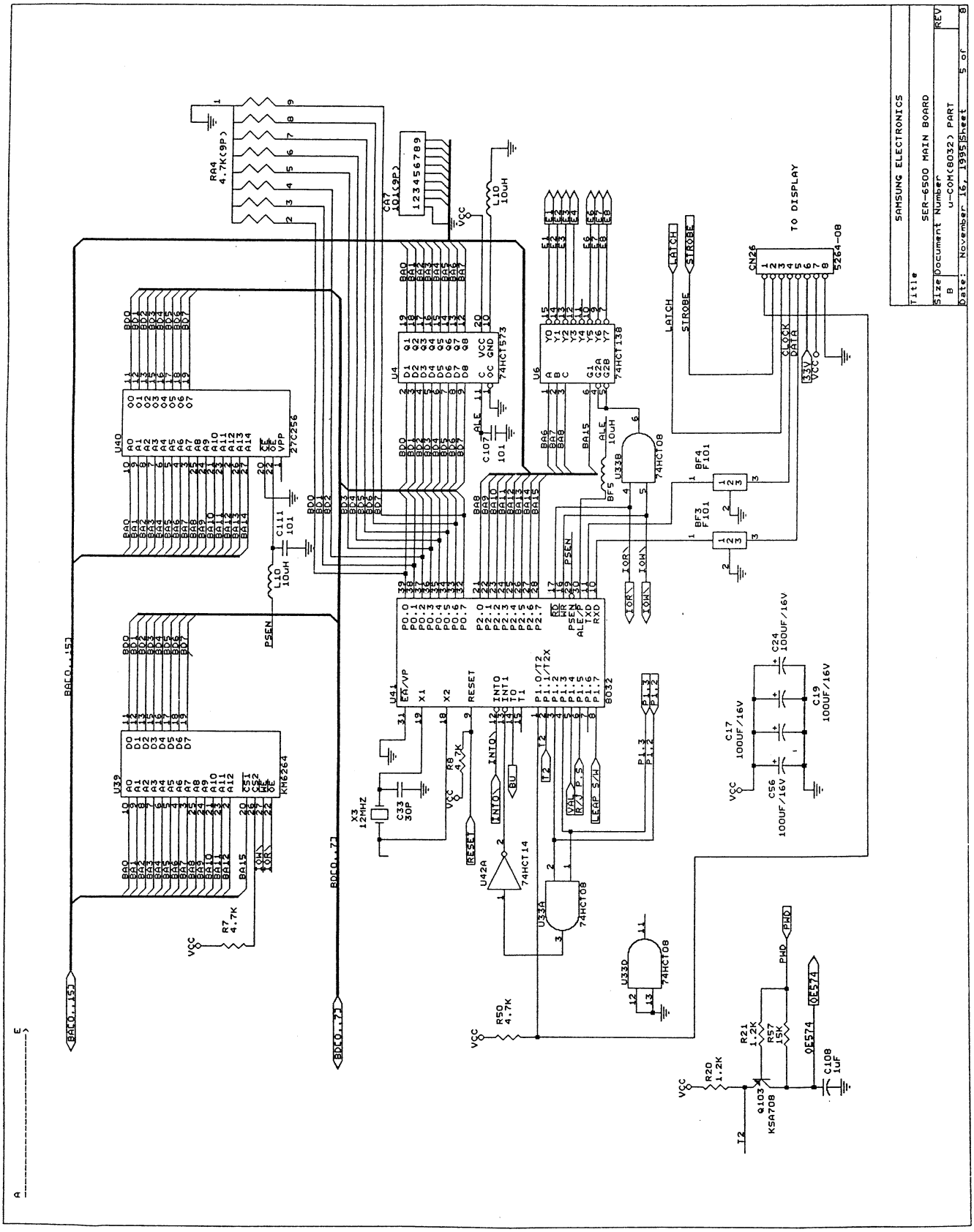
# 12-2 MAIN SCHAMATIC DIAGRAM

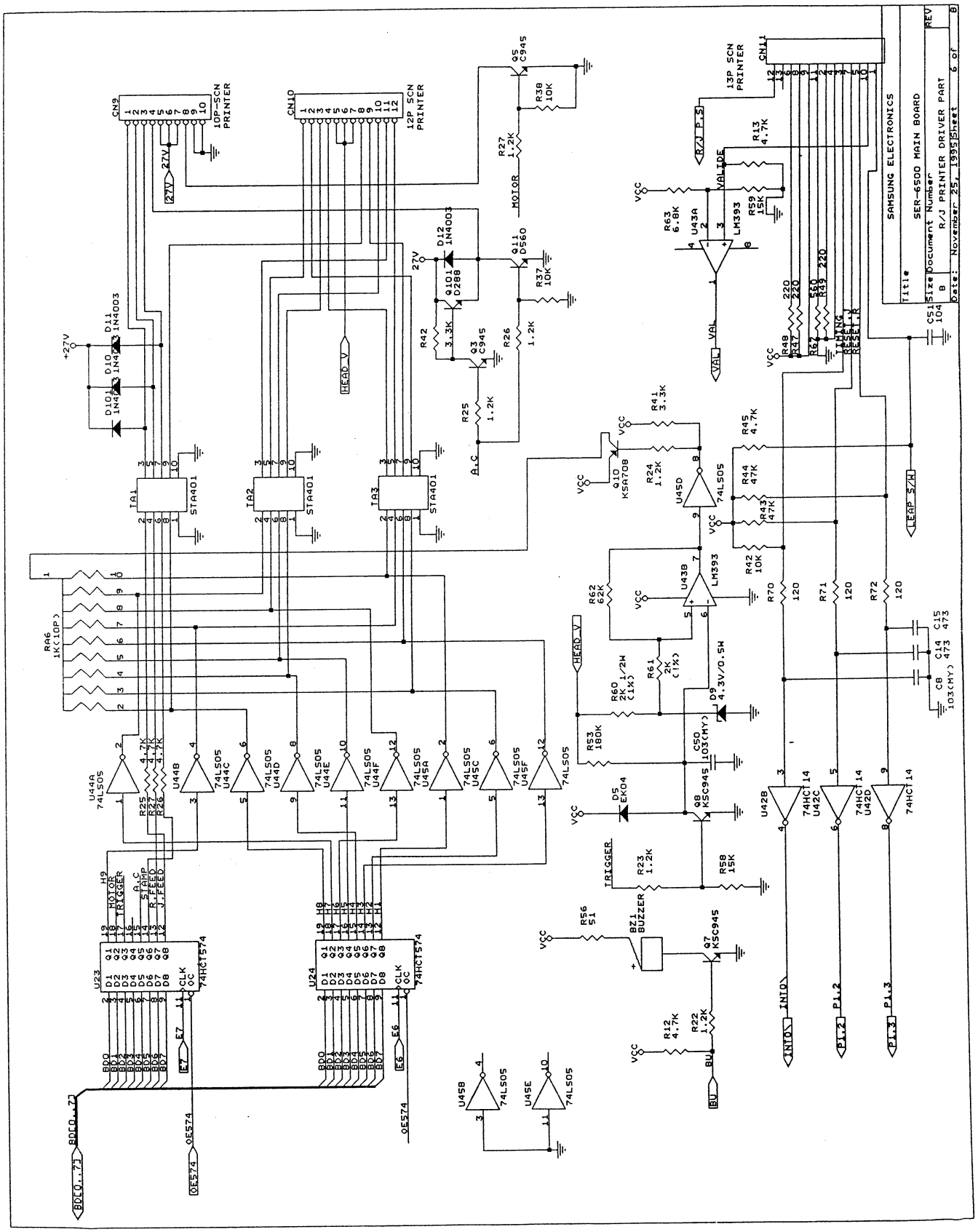


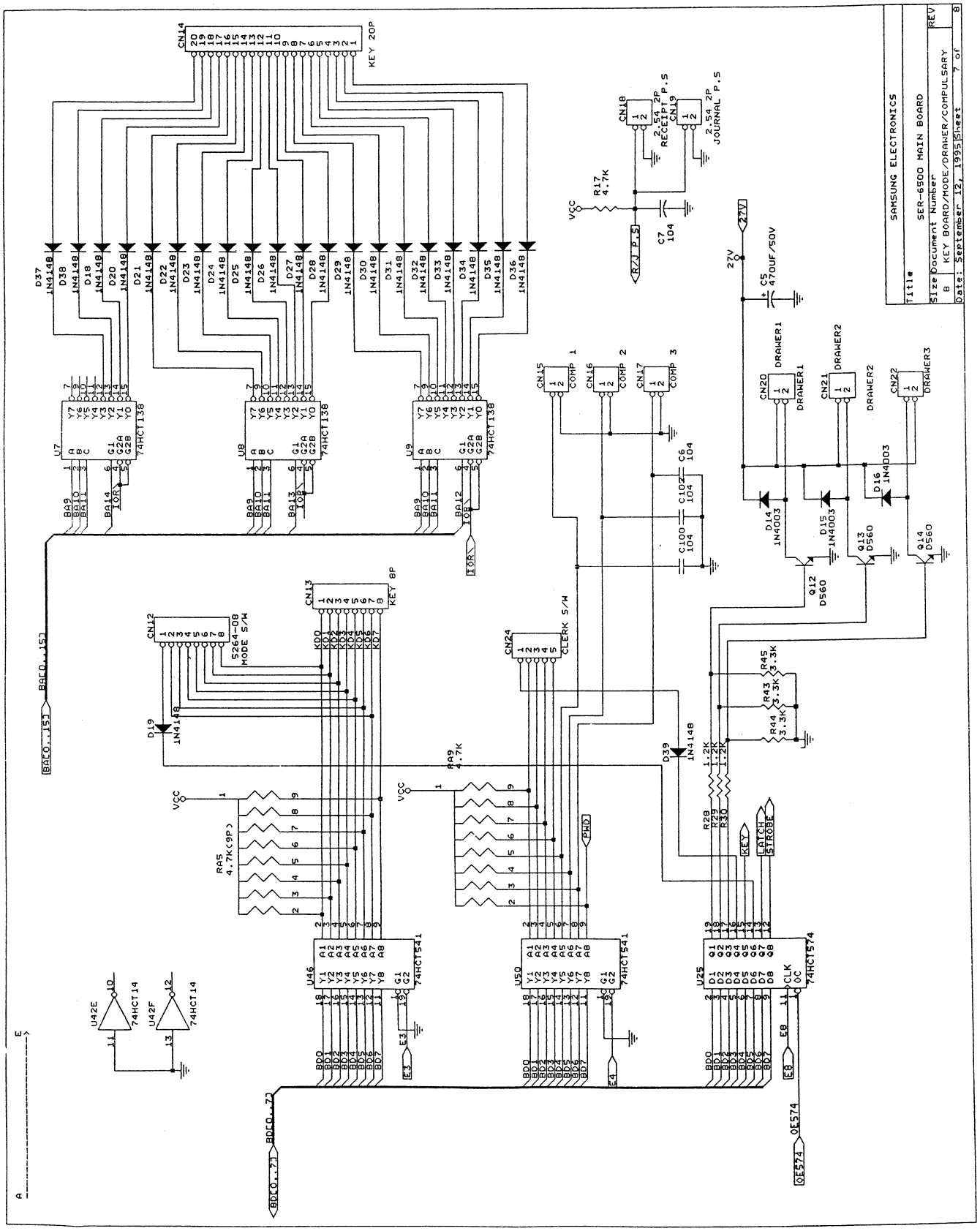

SAMSUNG ELECTRONICS
Title
SER-6500 MAIN BOARD
Size
B
Document Number
MAIN MEMORY PART
REV
Date: August 30, 1995
Sheet 2 of 8
A0000-BFFFFH
C0000-DFFFFH
E0000-FFFFFH
00000-1FFFFH
20000-3FFFFH
40000-5FFFFH
KM681000
27010
74HCT574
74HCT32
8259A
RP5C15
36.768KHZ
4.7K(6P)
101(9P)
ADC0..17
BDC0..7

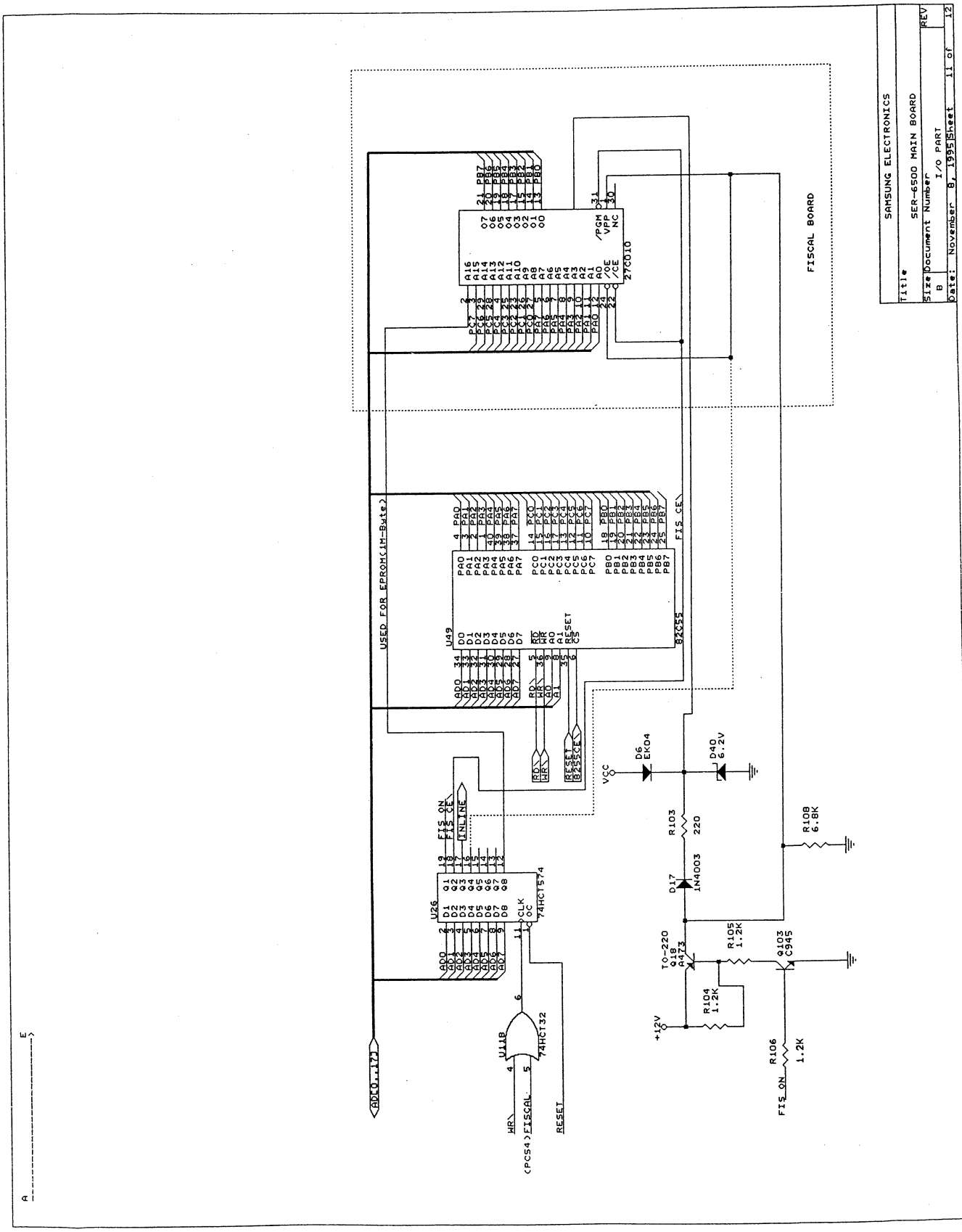

SAMSUNG ELECTRONICS
Title
SER-6500 MAIN BOARD
Size B
Document Number
IRC PART
REV
Date: September 12, 1995
Sheet 3 of 8
BATTERY CIRCUIT
POWER FAIL CIRCUIT
IRC
CN3
MODUL
U31
U32
U33C
U12A
U12B
U12C
U28
U29
U30
74HCT00
74HCT08
74HCT164
74HCT191
75176B
82588
INLINE
RESET
CLK


SAMSUNG ELECTRONICS
SER-650D MAIN BOARD
RS-232C PART
SERIAL 1
SERIAL 2
MAX232
KS82C452
74HCT393

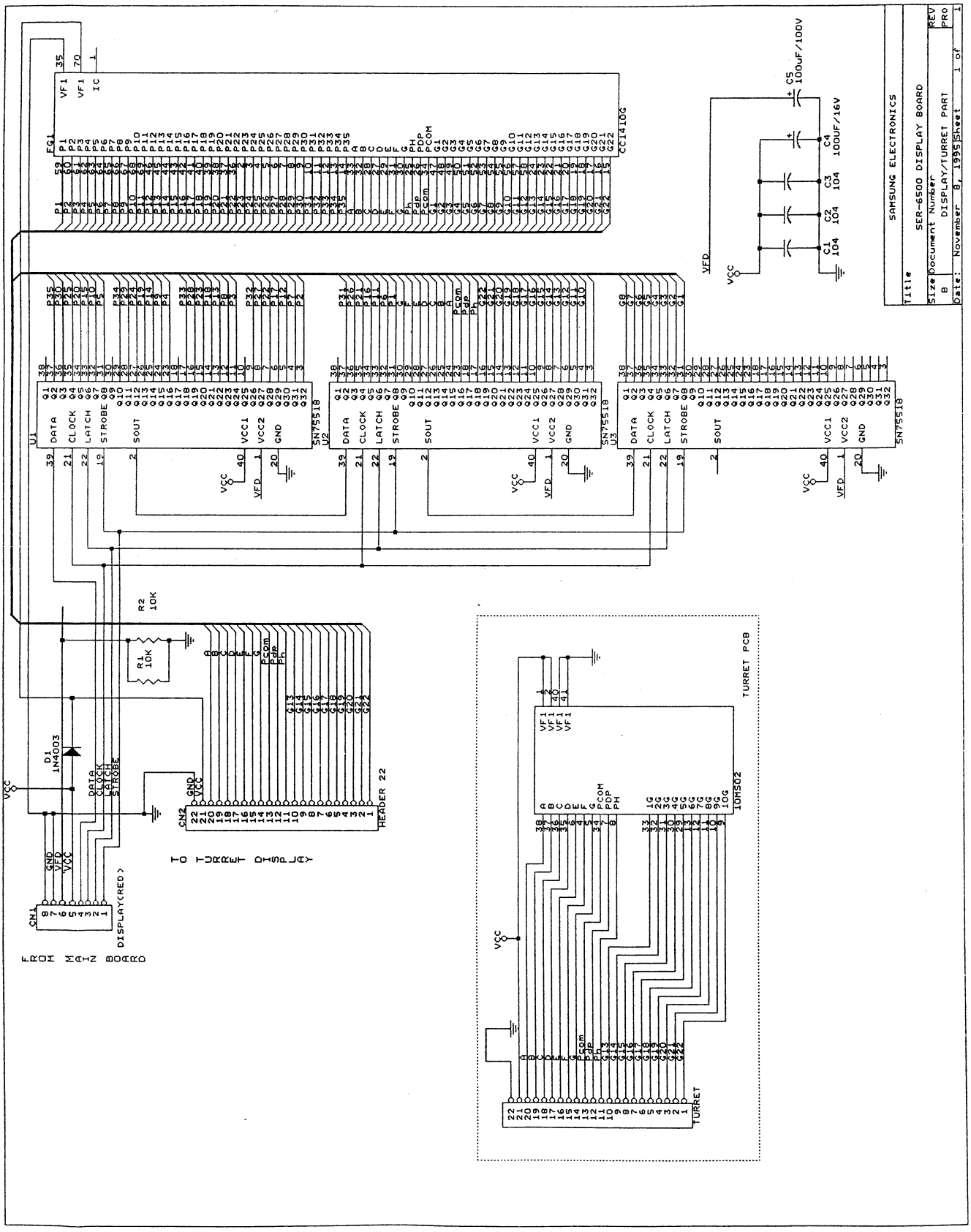

SAMSUNG ELECTRONICS
SER-6500 MAIN BOARD
U-COM(8032) PART
November 16, 1995
TO DISPLAY
LATCH
STROBE
CLOCK
DATA
RESET
PSEN
VCC
GND

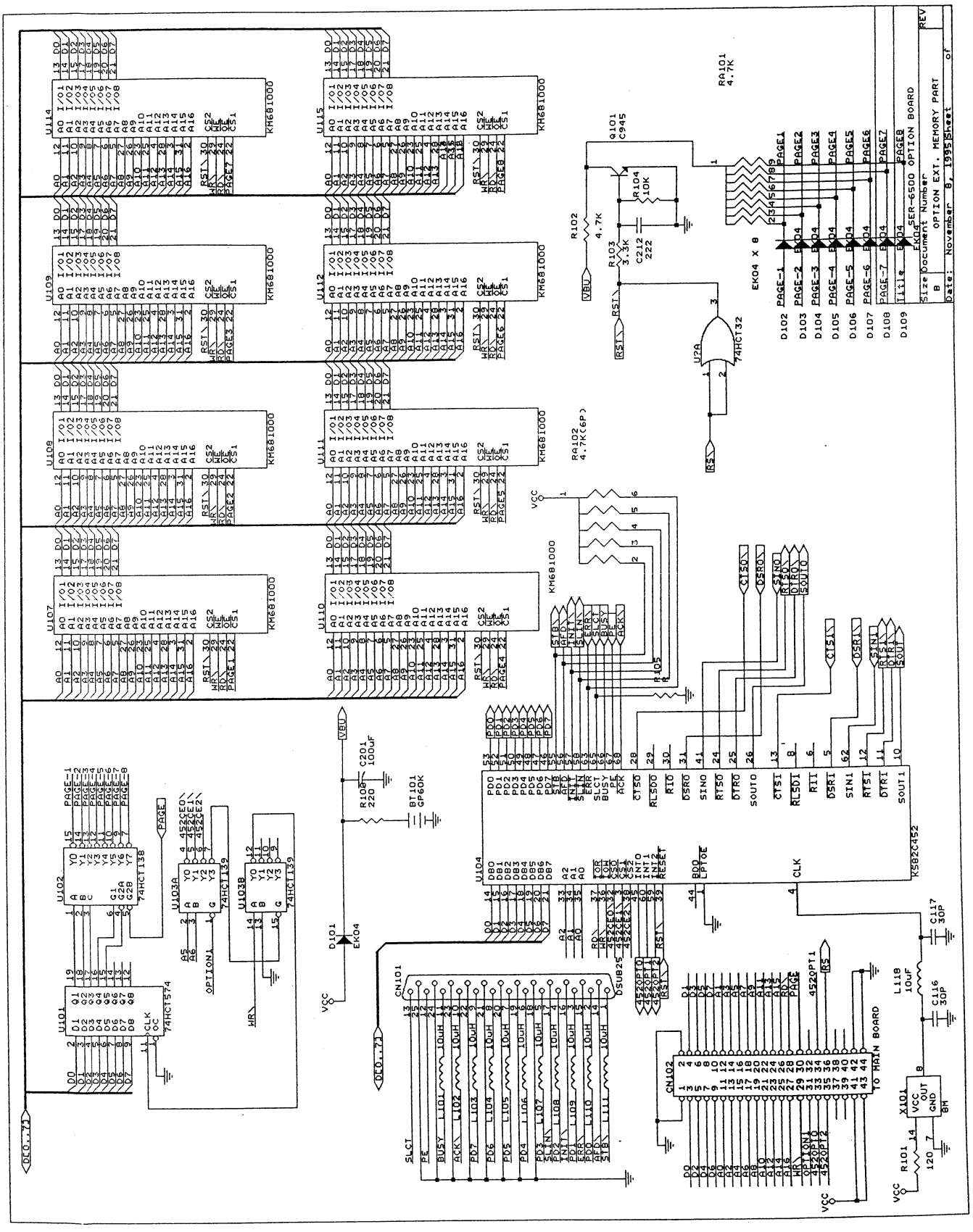

SAMSUNG ELECTRONICS
SER-6500 MAIN BOARD
R/J PRINTER DRIVER PART
Size B
Document Number
Date: November 25, 1995 Sheet 6 of 8
REV
10P-SCN PRINTER
12P SCN PRINTER
13P SCN PRINTER
MOTOR
HEAD_V
VAL
TRIGGER
BUZZER
LEAP S/H
TIMING
RESET_J
RESET_R
INT0
P1.2
P1.3
BDC0..7
OE574
74HCT574
74LS05
74HC14
LM393
STA401
KSC945
C945
D560
1N4003
D288
KSA708
EK04
4.3V/0.5W

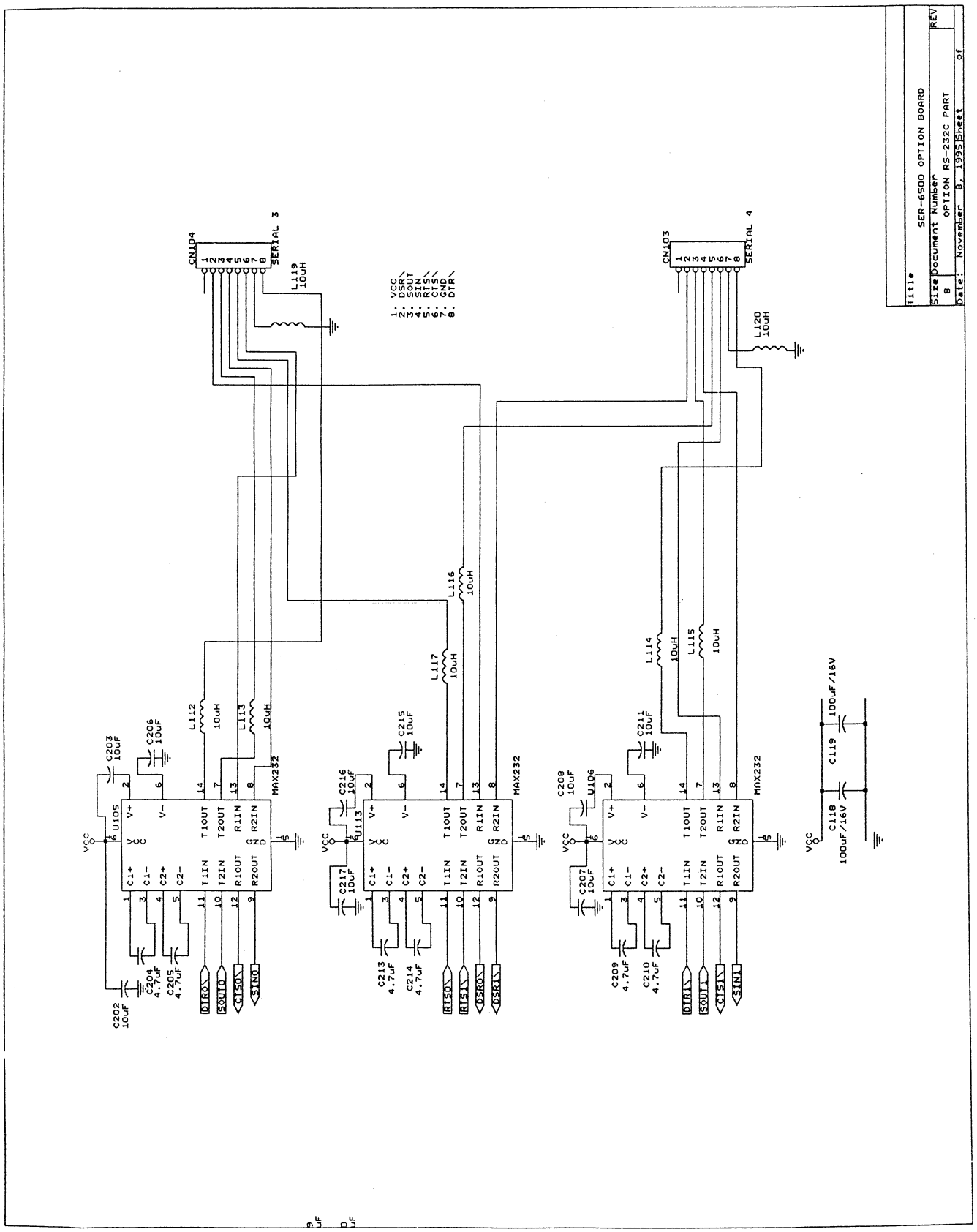

SAMSUNG ELECTRONICS
SER-6500 MAIN BOARD
KEY BOARD/MODE/DRAWER/COMPULSARY
September 12, 1995
CN14
KEY 20P
CN13
KEY 8P
CN12
5264-08
MODE S/W
CN24
CLERK S/W
CN15
COMP 1
CN16
COMP 2
CN17
COMP 3
CN18
RECEIPT P.S
CN19
JOURNAL P.S
CN20
DRAWER1
CN21
DRAWER2
CN22
DRAWER3
U7
U8
U9
74HCT138
U46
U50
74HCT541
U25
74HCT574
U42E
U42F
74HCT14
RA5
4.7K(9P)
RA9
4.7K
R17
4.7K
R43
3.3K
R44
3.3K
R45
3.3K
R28
1.2K
R29
1.2K
R30
1.2K
C5
470UF/50V
C6
104
C7
104
C100
104
C102
104
D14
1N4003
D15
1N4003
D16
1N4003
D19
1N4148
D39
1N4148
Q12
D560
Q13
D560
Q14
D560
VCC
27V
KEY
LATCH STROBE
PWD
IOR
BDO..15
BDO..7
OE574


SAMSUNG ELECTRONICS
SER-6500 MAIN BOARD
I/O PART
FISCAL BOARD
USED FOR EPROM(1M-Byte)
27C010
82C55
74HCT574
74HCT32
FIS_CE
FIS_ON
RESET
WR
RD
VCC
+12V
D6 EK04
D40 6.2V
D17 1N4003
R103 220
R104 1.2K
R105 1.2K
R106 1.2K
R108 6.8K
Q103 C945
TO-220 Q18 A473
ADD0..17
(PCS4)FISCAL

## 12-3 Display Board






Title
SER-6500 OPTION BOARD
Size
B
Document Number
OPTION RS-232C PART
REV
Date: November 8, 1995
Sheet
of
CN104
SERIAL 3
CN103
SERIAL 4
1. VCC
2. DSR\
3. SOUT
4. SIN
5. RTS\
6. CTS\
7. GND
8. DTR\
L119 10uH
L120 10uH
L112 10uH
L113 10uH
L116 10uH
L117 10uH
L114 10uH
L115 10uH
U105
U113
U106
MAX232
C202 10uF
C203 10uF
C204 4.7uF
C205 4.7uF
C206 10uF
C207 10uF
C208 10uF
C209 4.7uF
C210 4.7uF
C211 10uF
C213 4.7uF
C214 4.7uF
C215 10uF
C216 10uF
C217 10uF
C118 100uF/16V
C119 100uF/16V
VCC
DTR0\
SOUT0
CTS0\
SIN0
RTS0\
RTS1\
DSR0\
DSR1\
DTR1\
SOUT1
CTS1\
SIN1